

CEYLON JOURNAL OF SCIENCE

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MANUAL  
OF THE  
BIRDS OF CEYLON

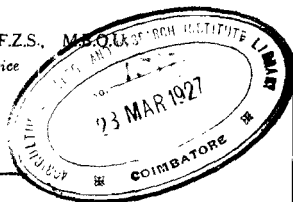
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BY

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*Ceylon Civil Service*

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CEYLON.

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# TABLE OF CONTENTS

	PAGE
Map of Ceylon .. .. .	<i>Frontispiece</i>
Introduction .. .. .	1
Diagram of Parts of a Bird . . . . .	6
Measurements & Synonymy .. . . .	8
Systematic Index .. .. .	9
Birds and their Classification .. . . .	23
The Birds of Ceylon in their Orders, ( <i>see Systematic Index</i> ) .. . . .	27
Glossary .. .. .	463
Index of English Names .. . . .	469
Index of Scientific Names .. . . .	474
List of Plates & their Contents .. . . .	493
Plates I to XX	



## INTRODUCTION

This Volume owes its inception to Dr. Pearson, Director of the Colombo Museum, who shortly before the war suggested the desirability of compiling an up-to-date text book on the Birds of Ceylon. Such a book was badly needed as hardly any information on the subject was readily procurable. Legge's magnificent work was out of print, while second-hand copies were hard to obtain, and beyond the reach of many purses; Murray's "Birds of Ceylon," in many respects inaccurate and unsuitable, was also out of print; the four standard volumes on "Birds" by Oates and Blanford in the "Fauna of British India" were rather a formidable purchase for a local student, who wished primarily to obtain knowledge of the species found in Ceylon, and who naturally desired fuller information regarding local distribution than could be given in a work necessarily based on such broad general outlines as would cover the Ornithology of the whole Indian Empire.

The compilation was originally entrusted to Messrs. F. Lewis, W. A. Cave and myself; but the War considerably upset arrangements, and for various reasons Messrs. Lewis and Cave were unable to contribute their portions. Both of them, however, handed over to me their rough notes, containing a considerable amount of spade-work, for which I am indebted to them. The preparation of the Volume was thus left in my hands and has occupied a great part of my leisure for a considerable period. Slow progress, however, was inevitable in a task which could only be undertaken at odd intervals and which entailed not merely the records of personal experience, but much assimilation and condensation of the information given by previous authorities and local informants.

As a preliminary step I drew up "Rough Drafts" dealing with the various groups of our birds, basing my descriptions and measurements as far as possible on the fairly full material available in the Colombo Museum. The remarks on the distribution in Ceylon and on the habits and nidification were based partly on my own notes and observations, but were very largely supplemented from the various standard authorities. In particular I quarried extensively from the mine of information contained in Legge's "Birds of Ceylon," a work which will remain for a long time to come invaluable to every student of our Ornithology. I have also to acknowledge with thanks many notes sent me by ornithologists from various parts of the Island. The classification

followed that of Oates & Blanford. These "Rough Drafts" appeared from time to time in "*Spolia Zeylanica*," as the various portions were completed.

Before, however, I had gone far in my task I came into touch with Mr. E. C. Stuart Baker, and through him with the great advances recently made by himself and other workers in the study and classification of the birds of the Indian Empire, bringing Indian Ornithology and its nomenclature into line with modern work in Europe and America. Mr. Stuart Baker has throughout given me invaluable advice, much information, and kindly encouragement, for which the warmest thanks of a fledgling author are due to one who is now the acknowledged authority on the subject.

By the time that the last instalment of the "Rough Drafts" had been published, and the material thus lay ready for revision and publication in volume form, it was possible to take advantage of Mr. Stuart Baker's recently issued "*Hand-List of the Birds of the Indian Empire*." The classification and nomenclature now followed are based on that list, with a few modifications, practically all of which are recent emendations communicated to me by Mr. Baker himself. The sequence of families in the Passerine Birds follows, with one or two slight alterations, the scheme given at pp 15-17 in vol. I of his 2nd edition of the "*Birds*" in the "*Fauna of British India*."

The aim of the present volume is thus to present those interested in the Ornithology of Ceylon with a classification and nomenclature, as far up-to-date as possible, of all the birds which have been found in the Island; giving at the same time brief statements of their description, distribution, habits and nidification. Further, as there are no popular books which deal in any complete manner with our Birds, I have endeavoured to assist novices in the short statements at the beginning of each Order and Family. These statements will, I hope, be found simple and free as far as feasible from technical terms. The keys have been drawn up with the same object in view. They are based wherever possible on outward characters, which in many instances are recognisable in the field. The key characters do not pretend to rest solely on scientific distinctions, or to hold good for other species than those found in the Island.

It may not be out of place at this point to meet a difficulty which appears frequently to confront beginners. They are anxious, they say, to identify the birds which they see, but being unfamiliar with ornithological terms they are not able to utilise the information contained in a book such as this. They have on occasions asked me how people who are not experts can expect to identify birds by turning over the



pages and by consulting, apparently at random, the short descriptions given. They complain that they cannot find their way about such a book, nor are they able to extract from it any helpful information. The answer is that there is no royal road to learning, no more instantaneous manner of acquiring knowledge in Ornithology than there can be in any other Science. The book should not be treated merely as a dictionary, wherein one may find, without any previous acquaintance of the subject, a satisfactory answer to any query.

If, however, enquirers are interested enough in Bird-life to spend a little time and pains in learning the parts of a bird, as given in the diagram; if they will make themselves acquainted with the short general descriptions of the Orders and Families which may be found in Ceylon, and practise the use of the keys, they will soon begin to obtain some knowledge of the matter, and will find that they can derive information to supply their needs. In other words, the volume should be looked upon by beginners in the light, as it were, of a grammar as well as a dictionary.

Illustrations of course, are of the greatest assistance, but unfortunately at the present time good illustrations are very expensive, and in order to keep the price of the book within moderate limits we have had to be content with a modest programme in this respect. Coloured plates were out of the question. The sixty species illustrated are fairly representative of the various Orders and Families found in Ceylon. The drawings are the work of Mr. E. L. Moses of the Colombo Museum staff and have been reproduced by the Ceylon Survey Department. It is hoped that they will prove acceptable, and my thanks are due to both the artist and the Surveyor-General for showing such results with the modest means and material at our disposal.

Want of space has led me reluctantly to omit any general discussion on the climate, configuration and recent geological history of the Island. These have such an important bearing on the present distribution and peculiar features of our Bird-life that it is impossible in a few short paragraphs to deal in any adequate manner with a subject so fascinating and full of suggestion to any student of Ornithology in Ceylon. I hope some time to have the opportunity of writing at fuller length on these problems, and merely wish, now, to make briefly one point.

The land-surface of the Island ranges from sea-level to an elevation of just over 8,000 feet, while the rainfall varies from under 40 inches a year in the dry, maritime districts of the North-west and the South-east to over 150 inches in parts of the Central Province and Sabaragamuwa. There exist, therefore the most divergent conditions of temperature and humidity in the various parts of the Island. Yet, notwithstanding all these

climatic diversities, owing to our insular position close to the Equator, we have no well marked procession of the seasons such as is met with in temperate regions. Consequently in many districts there are no sharply defined and universal breeding seasons. Each species chooses in each district the times of year suitable to its own particular requirements. Species which nest on the ground would seem to prefer a period of settled fine weather, other species prefer the rains, some breed almost all the year round. There is no month in the year in which eggs may not be found, and the same species may nest at different times in different localities. For these reasons my notes on the breeding seasons of the various species are in most cases merely approximate, and are subject to many local, or even purely individual exceptions.

It may also be of interest to note, in passing, with regard to migration, that Ceylon lies at the terminus of the routes which lead over or from the Himalayas into the plains of India and the South Indian Hills. Our migrants are confined to winter visitors. So far as is known no species visit the Island to breed, while beyond casual oceanic wanderers we have no birds of passage; that is, no species which use the Island as a halting place in the journey between their breeding quarters and their winter haunts.

In response to many requests, vernacular names for the various species have been inserted, so far as I have been able to ascertain them. My information, however, is still woefully incomplete; but this is largely due to the fact that the villager, whether Sinhalese or Tamil, as a rule, and so far as birds are concerned, is by no means a closely observant naturalist with a keen eye for specific distinctions. Except for some of the conspicuous and familiar species, the local names are more often generic than specific. For instance, so far as I am aware, practically every species of Tern is a *muhudu-lihiniya* i.e; Sea-Swallow to the Sinhalese, and a *kadal-kuruvi* i.e; Sea-bird to the Tamils. With some of the smaller Passerine Birds it is very hard to find any names which appear to be generally recognised, or accurately used. Compilers of English-Vernacular Dictionaries and the informants from whom they derive their information seem to be blissfully ignorant of Ornithology. Consequently the vernacular names of birds given in such dictionaries are often grossly inaccurate and should be looked upon with the gravest suspicion until they have been verified in the field. Further local inquiries should, however, enable us to supplement considerably, and in some cases to correct, such vernacular names as are here published. Those who are interested in the subject will be doing a welcome service if they send notes of Tamil, or Sinhalese bird names to the Director of the Colombo Museum. He is anxious to obtain them for labelling in the vernaculars the specimens

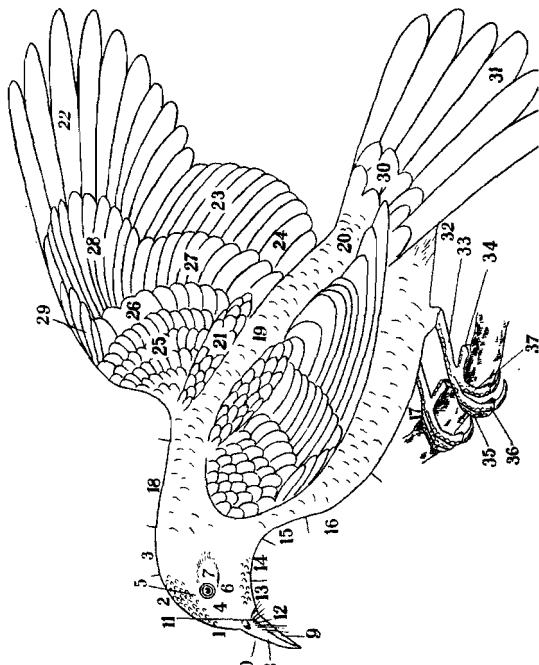
in the show-cases of the Bird-gallery. Care, however, should be taken that the information thus gathered has been verified and found to be reasonably accurate.

A long list of scientific synonyms would be of little use to readers, who in Ceylon are unable to refer to any large collection of works and articles on systematic Ornithology. As, however, the introduction of an up-to-date system of nomenclature has resulted in a change of name for many of the genera and species, I have given with each form described the first reference to the name now used, and also the names under which the bird will be found in Legge's "Birds of Ceylon" and Oates & Blanford's "Fauna of British India." These references will enable those who are familiar with the older names to recognise, without further search, former friends under their new guise, and will obviate the confusion which might otherwise be caused by such a considerable break with past usage.

# EXPLANATION OF DIAGRAM

- |  |                                      |
|--|--------------------------------------|
| 1. Forehead.                                     | 20. Rump.                            |
| 2. Crown.  | 21. Scapulars.                       |
| 3. Nape, or occiput.                             | 22. Primaries, or primary quills.    |
| 4. Lores, or space in front of the eye.          | 23. Secondaries.                     |
| 5. Eyebrow, or supercilium.                      | 24. Tertiaries, or inner secondaries |
| 6. Cheeks.                                       | 25. Lesser wing-coverts.             |
| 7. Ear-coverts.                                  | 26. Median wing-coverts.             |
| 8. Upper mandible.                               | 27. Greater wing-coverts.            |
| 9. Lower mandible.                               | 28. Primary coverts.                 |
| 10. Ridge of bill, or culmen.                    | 29. Winglet, or bastard wing.        |
| 11. Gape, or angle at junction of the mandibles. | 30. Upper tail-coverts.              |
| 12. Rictal bristles.                             | 31. Tail-feathers.                   |
| 13. Chin.  | 32. Under, or lower tail-coverts.    |
| 14. Throat.                                      | 33. Tarsus.                          |
| 15. Fore-neck.                                   | 34. Hind-toe, or hallux.             |
| 16. Breast.                                      | 35. Inner, or second toe.            |
| 17. Abdomen, or belly.                           | 36. Middle, or third toe.            |
| 18. Hind-neck.                                   | 37. Outer, or fourth toe.            |
| 19. Back.  |                                      |

DIAGRAM TO ILLUSTRATE EXTERNAL PARTS OF A BIRD



## Measurements

The measurements given are those adopted in the "Fauna of British India" "Birds" 1st edition, and are expressed in inches and decimals.

*Length*.—From the tip of the bill to the tip of the longest tail feather.

*Tail*.—From the root of the tail on the under side to the tip of the longest feather.

*Wing*.—The distance from the bend of the folded wing to the tip of the longest quill, measured straight.

*Tarsus*.—The distance from the centre of the joint between the tarsus and the tibia to the base of the middle toe.

*Bill*.—The distance from the angle of the gape to the tip, measured straight.

## Synonymy

1. *Scientific names*.—The references given in small type after the head-name of each form described are—1st; the earliest reference to the sub-specific, or specific name now used—2nd; the reference to the Birdin Legge's "History of the Birds of Ceylon"—3rd; the reference in the 1st edition "Fauna of British India," "Birds" Vol. I to IV, by Oates and Blanford.

2. *Vernacular names*.—These have been transliterated as far as feasible. The vowel sounds in both Sinhalese and Tamil are practically constant and the following key will give an approximate idea of the manner in which they should be pronounced.

a = 1st a in <i>mamma</i>	i = i in <i>sit</i>
ā = a in <i>father</i>	ī = i in <i>police</i>
e = a in <i>famish</i>	o = o in <i>pot</i>
ê = a in <i>various</i>	ō = o in <i>noble</i>
ē = e in <i>elbow</i>	u = u in <i>put</i>
ē = a in <i>pane</i>	ū = u in <i>rule</i>
au = ow in <i>cow</i>	ai = ai in <i>aisle</i>

The short *u* at the end of a word in Tamil is pronounced very slightly and often like a short *i*. "ai" at the end of a word in Tamil is pronounced rather slightly and like the "ei" in *veil*. The Tamil consonant transliterated as "ch" varies from the sound of "ch" in *church* to that of "ch," or in some places almost soft "a."

# SYSTEMATIC INDEX

Doubtful or introduced species are inserted in italics. Forms marked \* denote that the sub-species, \*\* that the species, \*\*\* that the genus is peculiar to Ceylon.

		Page
	Order I. PASSERES	27
Family I.	CORVIDAE	33
	1 <i>Corvus coronoides culminatus</i> (Sykes)	34
*	2 <i>splendens protegatus</i> Madar.	34
**	3 <i>Cissa ornata</i> (Wagler)	36
Family II	PARIDAE.	36
	4 <i>Parus major mahrattarum</i> Hartert	37
Family III	SITTIDAE.	38
	5 <i>Sitta frontalis frontalis</i> (Horsf.)	38
Family IV.	TIMALIIDAE.	39
Sub-family	TIMALIINAE.	41
*	6 <i>Turdoides griseus striatus</i> (Swains.)	43
**	7 <i>rufescens</i> (Blyth)	44
**	8 <i>cinereifrons</i> (Blyth)	44
*	9 <i>Pomatorhinus horsfieldi melanurus</i> (Blyth)	45
	10 <i>Dumetia albigularis albigularis</i> (Blyth)	46
*	11 <i>Pyctorhis sinensis nasalis</i> (Legge)	47
**	12 <i>Pellorneum fuscicapillum</i> (Blyth)	48
*	13 <i>Rhopocichla atriceps nigrifrons</i> (Blyth)	49
Sub-family	LIOTRICHINAE.	50
	14 <i>Aegithina tiphia zeylonica</i> (Gmel.)	50
	15 <i>Chloropsis aurifrons davidsoni</i> Stuart Baker	51
	16 <i>jerdoni</i> (Blyth)	52
Family V.	PYCNONOTIDAE.	53
	17 <i>Microscelis psaroides ganeeea</i> (Sykes)	54
	18 <i>Molpastes haemorrhous haemorrhous</i> (Gmel.)	55
	19 <i>Iole icterica</i> (Strickl.)	56
**	20 <i>Pycnonotus melanicterus</i> (Gmel.)	56
	21 <i>luteolus</i> (Less.)	57

		Page
***	22 <i>Kelaartia penicillata</i> (Blyth) . . . . .	58
Family VI.	TURDIDAE. . . . .	59
Sub-family	SAXICOLINAE. . . . .	60
	23 <i>Saxicola caprata atrata</i> (Kelaart). . . . .	60
Sub-family	PHOENICURINAE. . . . .	61
	24 <i>Cyanosylvia suecica pallidogularis</i> (Sarudny.) . . . .	62
	25 <i>Saxicoloides fuscata fuscata</i> (Linn). . . . .	63
	26 <i>Opsychus saularis ceylonensis</i> (Slater) . . . . .	64
	27 <i>Kittocinclu macroura indica</i> Stuart Baker . . . . .	65
Sub-family	BRACHYPTERYGINAE. . . . .	66
	28 <i>Larvivora brunnea</i> Hodg. . . . .	66
Sub-family	TURDINAE. . . . .	67
*	29 <i>Turdus merula kinnisii</i> (Blyth) . . . . .	69
	30 <i>Geocichla wardi</i> (Jerd.) . . . . .	70
	31 . . . . . <i>citrina citrina</i> (Lath.) . . . . .	71
	32 <i>Monticola solitaria pandoo</i> (Sykes) . . . . .	71
*	33 <i>Oreocinclu dauma imbricata</i> (Layard) . . . . .	72
**	34 . . . . . <i>spiloptera</i> Blyth. . . . .	73
***	35 <i>Arrenga blighi</i> Holdsworth. . . . .	74
Family VII.	MUSCICAPIDAE. . . . .	75
	36 <i>Siphia parva hyperythra</i> (Cab.) . . . . .	77
	37 <i>Cyornis rubeculoides rubeculoides</i> (Vigors) . . . . .	78
	38 . . . . . <i>tickelliae mesaea</i> Oberholser . . . . .	79
**	39 <i>Stoparola sordida</i> (Wald.) . . . . .	79
	40 <i>Alseonax latirostris poonensis</i> (Sykes) . . . . .	80
	41 . . . . . <i>muttui</i> (Layard) . . . . .	81
	. . . . . <i>Ochromela nigrorufa</i> (Jerd.) . . . . .	82
	42 <i>Oulicicapa ceylonensis ceylonensis</i> (Swains.) . . . .	82
	43 <i>Terpsephone paradisi paradisi</i> (Linn.) . . . . .	83
*	44 <i>Hypothymis azurea ceylonensis</i> (Sharpe). . . . .	84
*	45 <i>Rhipidura aureola compressirostris</i> (Blyth). . . . .	85
Family VIII.	LANIIDAE. . . . .	86
	46 <i>Lanius schach caniceps</i> (Blyth) . . . . .	87
	47 . . . . . <i>cristatus cristatus</i> (Linn.) . . . . .	88
	48 . . . . . <i>cristatus lucionensis</i> (Linn.) . . . . .	89
	49 <i>Hemipus picatus picatus</i> (Sykes). . . . .	90
*	50 <i>Tephrodornis pondicerianus affinis</i> (Blyth). . . . .	91
Family IX.	PERICOROTIDAE. . . . .	92
	51 <i>Pericorotus speciosus flammeus</i> (Forster) . . . . .	93
	52 . . . . . <i>peregrinus malabaricus</i> (Gmel.) . . . . .	94
	53 <i>Lalage sykesii</i> Strickl. . . . .	95



		Page
	54	<i>Graucalus macei layardi</i> (Blyth) . . . . . 96
Family X.		ARTAMIDAE. . . . . 97
	55	<i>Artamus fuscus</i> ( Vieill.) . . . . . 97
Family XI.		DICRUVIDAE. . . . . 98
	56	<i>Dicrurus macrocerus minor</i> (Layard). . . . . 99
	57	<i>leucophaeus minimus</i> Stuart Baker. 100
	58	<i>coerulescens leucopygialis</i> (Blyth). 101
		<i>Dicrurus coerulescens coerulescens</i> (Linn.) . . . . 102
	59	<i>Dissemurulus lophorhinus</i> ( Vieill.) . . . . . 102
	60	<i>Dissemurus paradiseus ceylonensis</i> (Sharpe). 103
Family XII.		SYLVIDAE. . . . . 105
	61	<i>Locustella certhiola</i> (Pall.) . . . . . 108
	62	<i>Acrocephalus stentoreus amya</i> Stuart Baker. 109
	63	<i>dumetorum</i> (Blyth) . . . . . 110
	64	<i>Elaphornis palliseri</i> (Blyth.) . . . . . 110
	65	<i>Orthotomus sutorius sutorius</i> (Forst.) . . . . 111
	66	<i>Cisticola juncidis omalura</i> (Blyth). . . . . 112
	67	<i>Franklinia gracilis</i> (Frank.) . . . . . 113
	68	<i>Schoenicola platyura</i> (Jerd.) . . . . . 114
	69	<i>Hypolais scita</i> (Eversm.) . . . . . 115
	70	<i>Sylvia althaea</i> Hume. . . . . 116
	71	<i>curruca affinis</i> (Blyth.) . . . . . 116
	72	<i>Acanthopneuste nitidus nitidus</i> (Blyth) . . . . 117
	73	<i>nitidus viridanus</i> (Blyth) . . . . . 117
	74	<i>magnirostris</i> (Blyth) . . . . . 118
	75	<i>Prinia socialis socialis</i> (Sykes) . . . . . 119
	76	<i>sylvatica valida</i> (Blyth) . . . . . 120
	77	<i>inornata jerdoni</i> (Blyth) . . . . . 121
Family XIII.		IRENIDAE. . . . . 122
	78	<i>Irena puella puella</i> (Lath.) . . . . . 122
Family XIV.		ORIOOLIDAE. . . . . 123
	79	<i>Oriolus indicus indicus</i> (Jerd.) . . . . . 124
	80	<i>luteolus luteolus</i> (Linn.) . . . . . 124
Family XV.		EULABETIDAE. . . . . 125
	81	<i>Eulabes religiosa</i> (Linn.) . . . . . 126
	82	<i>ptilogenys</i> (Blyth) . . . . . 127
Family XVI.		STURNIDAE. . . . . 127
	83	<i>Pastor roseus</i> (Linn.) . . . . . 128
	84	<i>Temenuchus pagodarum</i> (Gmel.) . . . . . 129
	85	<i>Sturnornis senex</i> (Temm.) . . . . . 130
	86	<i>Acridotheres tristis melanosternus</i> (Legge) . . 131

	Page
Family XVII.	PLOCEIDAE. . . . . 132
Sub-family	PLOCEINAE. . . . . 132
87	<i>Ploceus philippinus philippinus</i> (Linn.) . . . . 133
88	<i>manyar flaviceps</i> (Less.) . . . . . 134
Sub-family	VIDUINAE. . . . . 135
89	<i>Munia malacca</i> (Linn.) . . . . . 137
	<i>Munia oryzivora</i> (Linn.) . . . . . 136
	<i>Munia atricapilla</i> (Vieill.) . . . . . 136
90	<i>Uroloncha striata striata</i> (Linn.) . . . . . 138
**	91 <i>kelaarti</i> (Blyth) . . . . . 138
	92 <i>malabarica</i> (Linn.) . . . . . 139
	93 <i>punctulata punctulata</i> (Linn.) . . 140
	<i>Amandava amandava</i> (Linn.) . . . . . 136
Family XVIII.	FRINGILLIDAE. . . . . 141
94	<i>Gymnorhis xanthostern xanthosterna</i> (Bonap.) 141
95	<i>Passer domesticus indicus</i> (Jerd.) . . . . . 142
Family XIX.	HIRUNDINIDAE. . . . . 143
96	<i>Hirundo rustica gutturalis</i> (Scop.) . . . . . 144
97	<i>rustica javanica</i> (Sparrm.) . . . . . 145
98	<i>daurica erythropygia</i> (Sykes) . . . . . 146
*	99 <i>daurica hyperythra</i> (Layard) . . . . . 147
	<i>Ptyonoprogne sp.?</i> . . . . . 144
Family XX.	MOTACILLIDAE. . . . . 148
100	<i>Motacilla alba dukhunensis</i> (Sykes) . . . . . 149
101	<i>alba madaraspatensis</i> (Gmel.) . . . . . 150
102	<i>cinerea melanope</i> (Pall.) . . . . . 151
103	<i>flava thunbergi</i> (Billberg) . . . . . 152
104	<i>Dedronothus indicus</i> (Gmel.) . . . . . 153
105	<i>Anthus richardi richardi</i> (Vieill.) . . . . . 154
106	<i>richardi striolatus</i> (Blyth) . . . . . 155
107	<i>richardi rufulus</i> (Vieill.) . . . . . 155
Family XXI.	ALAUDIDAE. . . . . 156
108	<i>Alauda gulgula australis</i> (Brookes). . . . . 157
109	<i>Mirafra assamica affinis</i> (Jerd.) . . . . . 158
110	<i>Pyrrhulauda grisea grisea</i> (Scop.) . . . . . 159
Family XXII.	ZOSTEROPIDAE . . . . . 160
*	111 <i>Zosterops palpebrosa egregia</i> (Madar.) . . . . 161
**	112 <i>ceylonensis</i> (Holds.) . . . . . 161
Family XXIII	NECTARINIIDAE. . . . . 162
Sub-family	NECTARINIINAE. . . . . 162
113	<i>Cyrtostomus tofenius</i> (Linn.) . . . . . 164

		Page
	114 <i>Cyrtostomus asiaticus asiaticus</i> (Lath.)	165
	115 <i>minimus</i> (Sykes)	166
	116 <i>zeylonicus</i> (Linn.)	166
Family XXIV.	DICAETIDAE.	167
	117 <i>Dicaeum erythrorhyncus</i> (Lath.)	168
***	118 <i>Acemonorhyncus vincens</i> (Sclater)	169
	119 <i>Piprosoma squalidum squalidum</i> (Burton)	170
Family XXV.	PITTIDAE.	170
	120 <i>Pitta brachyura</i> (Linn.)	171
	Order II. PICI	173
Family	PICIDAE.	173
Sub-family	PICINAE	173
	121 <i>Picus striolatus</i> Blyth.	175
	122 <i>chlorolophus chlorigaster</i> (Jerd.)	176
	<i>Dryobates macei macei</i> (Vieill.)	177
	123 <i>Liopicus mahrattensis</i> (Lath.)	176
	124 <i>Iyngipicus gymnophthalmus</i> (Blyth)	178
	125 <i>Micropternus brachyurus lanka</i> Kloss.	178
	126 <i>Brachypternus aurantius puncticollis</i> (Malh.)	179
*	127 <i>aurantius erithronotus</i> (Vieill.)	180
	128 <i>Chrysocolaptes festivus</i> (Bodd.)	181
*	129 <i>guttacristatus stricklandi</i> (Layard)	182
	Order III. ZYGODACTYLI	183
Family	CAPITONIDAE.	183
	130 <i>Thereiceryx zeylanicus zeylanicus</i> (Gmel.)	184
**	131 <i>Cyanops flavifrons</i> (Cuvier)	184
	132 <i>Xantholaema haemacephala indica</i> (Lath.)	185
**	133 <i>rubricapilla</i> (Gmel.)	186
	Order IV. ANISODACTYLI	188
	Sub-Order CORACIAE.	188
Family	CORACIADAE.	188
	134 <i>Coracias benghalensis indica</i> (Linn.)	189
	135 <i>Eurystomus orientalis orientalis</i> (Linn.)	189
	Sub-Order MEROPES.	190
Family	MEROPTIDAE.	190
	136 <i>Merops orientalis orientalis</i> (Lath.)	191

		Page
	137 <i>Merops superciliosus javanicus</i> (Hors.)	192
	138 <i>Melittophagus erythrocephalus erythrocephalus</i> (Gmel.)	193
	Sub-Order HALYCONES	194
Family	ALCEDINIDAE.	194
	139 <i>Ceryle rudis leucomelanura</i> (Reichen.)	195
*	140 <i>Alcedo atthis taprobana</i> (Kleinschm.)	195
	141 <i>coerulescens asiatica</i> (Swains.)	196
	142 <i>Ceyx tridactylus tridactylus</i> (Pall.)	197
	143 <i>Ramphalcyon capensis gural</i> (Pearson)	197
	144 <i>Halcyon smyrnensis generosa</i> (Madar.)	198
	145 <i>pileata</i> (Bodd.)	199
	Sub-Order BUCEROTES	200
Family	BUCEROTIDAE.	200
	146 <i>Anthracceros coronatus coronatus</i> (Bodd.)	201
**	147 <i>Lophoceros gingalensis</i> (Shaw).	202
	Sub-Order UPUPAE	202
Family	UPUPIDAE.	202
	148 <i>Upupa epops ceylouensis</i> (Reich.)	203
	Order V. MACROCHIRES	204
	Sub-Order MICROPODES	204
Family	MICROPODIDAE.	204
Sub-family	MICROPODINAE.	205
	149 <i>Micropus melba melba</i> (Linn.)	205
	150 <i>affinis affinis</i> (Gray).	206
	151 <i>Tachornis batassiensis batassiensis</i> (Gray)	207
Sub-family	CHAETURINAE.	207
	152 <i>Hirundinapus gigantea indica</i> (Hume).	208
	153 <i>Collocalia unicolor unicolor</i> (Jerd.)	208
	<i>Collocalia francica francica</i> (Gmel.)	209
Sub-family	HEMIPROCNINAE.	209
	154 <i>Hemiprocne coronata</i> (Tick.)	209
	Sub-Order CAPRIMULGI	210
Family	CAPRIMULGIDAE.	210
	155 <i>Caprimulgus asiaticus</i> (Lath.)	211
	156 <i>atripennis</i> (Jerd.)	212
**	157 <i>kelaarti</i> Blyth	213
	Sub-Order PODARGI	214
Family	PODARGIDAE.	214
	158 <i>Batrachotomus moniliger</i> Layard	214

		Page
	Order VI. TROGONES .....	218
Family	TROGONIDAE. ....	216
159	Pyrotrogon fasciatus ( <i>Pennant</i> ). ....	216
	Order VII. COCCYGES .....	218
Family	CUCULIDAE. ....	218
Sub-family	CUCULINAE. ....	218
160	Cuculus canorus telephonus ( <i>Heine</i> ). ....	220
161	poliocephalus poliocephalus ( <i>Lath.</i> ) ....	221
162	micropterus micropterus ( <i>Gould</i> ). ..	221
163	Hierococcyx varius ( <i>Vahl.</i> ) ....	222
164	Cacomantis merulinus passerinus ( <i>Vahl.</i> ) ....	223
*	165 Penthoceryx sonneratii waiti <i>Stuart Baker</i> ..	224
	Chalcococcyx maculatus ( <i>Gmel.</i> ) ....	228
166	Surniculus lugubris stewarti <i>Stuart Baker</i> ..	225
167	Clamator jacobinus ( <i>Bodd.</i> ) ....	226
168	coromandus ( <i>Linn.</i> ) ....	227
Sub-family	PHOENICOPHAINAE. ....	229
169	Eudynamis scolopaceus scolopaceus ( <i>Linn.</i> ) ....	230
170	Rhopodytes viridirostris ( <i>Jerd.</i> ) ....	231
***	171 Phoenicophaës pyrrhocephalus ( <i>Pennant</i> ) ..	231
172	Taccoocua sirkee leschenaulti ( <i>Less.</i> ) ....	232
173	Centropus sinensis parroti ( <i>Stresemann</i> ) ....	233
174	chlororhynchus <i>Blyth</i> ....	233
175	bengalensis bengalensis ( <i>Gmel.</i> ) ..	234
	Order VIII. PSITTACI .....	236
Family	PSITTACIDAE. ....	236
176	Psittacula eupatria eupatria ( <i>Linn.</i> ) ....	237
177	torquata ( <i>Bodd.</i> ) ....	238
178	cycnocephala cycnocephala ( <i>Linn.</i> ) ....	238
	Psittacula columboides ( <i>Vigors</i> ). ....	240
**	179 Psittacula calthropae ( <i>Layard</i> ). ....	239
180	Coryllis indicus ( <i>Gmel.</i> ) ....	240
	Order IX. STRIGES .....	242
Family	TYTONIDAE. ....	243
181	Tyto alba javanica ( <i>Gmel.</i> ) ....	244

		Page
Family	ASIONIDAE. ....	245
Sub-family	PHOTODILINAE. ....	245
* 182	<i>Photodilus badius assimilis</i> (Hume). ....	245
Sub-family	ASIONINAE. ....	246
183	<i>Asio flammeus flammeus</i> (Pontoppidan) ....	247
184	<i>Strix indranee indranee</i> (Sykes) ....	247
Sub-family	BUBONINAE. ....	248
185	<i>Ketupa zeylonensis zeylonensis</i> (Gmel.) ....	249
186	<i>Huhua nipalensis</i> (Hodg.) ....	250
* 187	<i>Otus scops minutus</i> (Legge). ....	251
188	<i>bakkamoena bakkamoena</i> (Pennant) ....	252
189	<i>Glaucidium radiatum malabaricum</i> (Sharpe) ....	254
* 190	<i>radiatum castanopterum</i> (Blyth) ....	254
* 191	<i>Ninox scutulata hirsuta</i> (Temm.) ....	255
	Order X. ACCIPITRES ....	257
Family	PANDIONIDAE. ....	257
192	<i>Pandion haliaëtus haliaëtus</i> (Linn.) ....	258
Family	GYPIDAE. ....	259
193	<i>Neophron perenopterus ginginianus</i> (Lath.) ..	259
Family	FALCONIDAE. ....	260
Sub-family	FALCONINAE. ....	260
194	<i>Hieraëtus fasciatus</i> (Vieill.) ....	262
195	<i>pennatus</i> (Gmel.) ....	263
196	<i>Lophotriorchis kieneri</i> (de Sparre) ....	264
197	<i>Ictinaëtus malayensis perniger</i> (Hodg.) ....	265
198	<i>Spizaëtus cirrhatus ceylanensis</i> (Gmel.) ....	266
199	<i>nipalensis kelaarti</i> (Legge) ....	267
* 200	<i>Spilornis cheela spilogaster</i> (Blyth) ....	269
201	<i>Cuncuma leucogaster</i> (Gmel.) ....	270
202	<i>Polioaëtus ichthyaëtus</i> (Horsf.) ....	271
203	<i>Haliastur indus indus</i> (Bodd.) ....	272
204	<i>Milvus migrans govinda</i> (Sykes). ....	273
205	<i>Elanus coeruleus coeruleus</i> (Desfon.) ....	274
206	<i>Circus macrourus</i> (Gmel.) ....	276
207	<i>pygargus</i> (Linn.) ....	277
208	<i>melanoleucus</i> (Forst.) ....	278
209	<i>aeruginosus aeruginosus</i> (Linn.) ....	279
210	<i>Buteo buteo rufiventer</i> (Jerd.) ....	281
211	<i>Astur badius badius</i> (Gmel.) ....	282
212	<i>trivirgatus trivirgatus</i> (Temm.) ....	283

	Page
<i>Accipiter nisus nisosimilis</i> (Tick.)	284
213 <i>Accipiter virgatus besra</i> (Jerd.)	285
214 <i>Pernis cristatus ruficollis</i> (Less.)	286
215 <i>Lophastur leuphotes leuphotes</i> (Dumont)	287
216 <i>Aviceda jerdoni ceylonensis</i> (Legge)	288
217 <i>Falco peregrinus calidus</i> (Lath.)	290
218 <i>peregrinus peregrinator</i> (Sund.)	291
219 <i>severus indicus</i> (Meyer & Wiggles.)	292
220 <i>vespertinus amurensis</i> (Badde.)	293
<i>Falco chiquera chiquera</i> (Daudin)	295
221 <i>Falco tinnunculus tinnunculus</i> (Linn.)	294
<i>Falco tinnunculus interstinctus</i> (McClell.)	295
<i>Microhierax fringillaris</i> (Drap.)	296
Order XI. COLUMBAE	297
Family COLUMBIDAE	297
Sub-family TRERONINAE	298
222 <i>Crocopus phoenicopterus chlorogaster</i> (Blyth)	299
* 223 <i>Treron pompadora pompadora</i> (Gmel.)	300
224 <i>bisincta bisincta</i> (Jerd.)	301
Sub-family DUCULINAE	302
225 <i>Ducula badia cuprea</i> (Jerd.)	302
226 <i>Muscadivores aenea pusilla</i> (Blyth)	303
Sub-family PHABINAE	304
227 <i>Chalcophaps indica</i> (Linn.)	304
Sub-family COLUMBINAE	305
228 <i>Columba livia intermedia</i> (Strick.)	306
** 229 <i>Alsocomus torringtonii</i> (Bonap.)	307
230 <i>puniceus</i> (Tick.)	308
231 <i>Streptopelia orientalis meena</i> (Sykes)	308
232 <i>chinensis ceylonensis</i> (Reich.)	309
233 <i>decaocto decaocto</i> (Frisalsky)	310
234 <i>Oenopopelia tranquebarica tranquebarica</i> (Herm.)	311
Order XII. GALLINAE	313
Sub-Order ALECTOROPODES	313
Family PHASIANIDAE	313
Sub-family PHASIANINAE	313
235 <i>Pavo cristatus</i> (Linn.)	314

		Page
**	236 <i>Gallus lafeyettii</i> (Less.)	316
**	237 <i>Galloperdix bicalcarata</i> (Forster)	317
	238 <i>Excalfactoria chinensis chinensis</i> (Linn.)	318
	239 <i>Coturnix coromandelica</i> (Gmel.)	319
	<i>Coturnix coturnix coturnix</i> (Linn.)	320
	240 <i>Perdicula asiatica</i> (Lath.)	320
	241 <i>Francolinus pictus pictus</i> (Jerd.)	321
	242 <i>pondicerianus pondicerianus</i> (Gmel.)	322
	Order XIII. HEMIPODII	324
Family	TURNICIDAE.	324
*	243 <i>Turnix javanica leggei</i> Stuart Baker.	324
	Order XIV. GRALLAE	326
	Sub-Order FULICARIAE	326
Family	RALLIDAE.	326
	244 <i>Rallus aquaticus indicus</i> (Blyth)	327
	245 <i>Hypotaenidia striata striata</i> (Linn.)	328
	246 <i>Porzana pusilla pusilla</i> (Pall.)	329
	247 <i>Rallina supercilialis</i> (Eyton)	329
	248 <i>Amaurornis fuscus fuscus</i> (Linn.)	330
	249 <i>phoenicura phoenicura</i> (Blyth)	331
	250 <i>Gallinula chloropus parvifrons</i> (Blyth)	332
	251 <i>Gallicrex cinerea</i> (Gmel.)	332
	252 <i>Porphyrion poliocephalus poliocephalus</i> (Lath.)	332
	<i>Fulica atra atra</i> Linn.	333
	Order XV. LIMICOLAE	335
Family	BURRHINIDAE.	336
	253 <i>Burhinus oedienemus indicus</i> (Salva.)	336
	254 <i>Eusacus recurvirostris</i> (Cuvier)	337
Family	DROMADIDAE.	338
	255 <i>Dromas ardeola</i> (Paykull)	338
Family	GLAREOLIDAE.	339
Sub-family	CURSORINAE.	339
	256 <i>Cursorius coromandelicus</i> (Gmel.)	339
Sub-family	GLAREOLINAE.	340
	257 <i>Glareola maldivarum</i> Forster	341

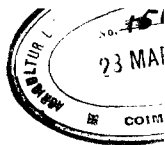


		Page
	258 <i>Glareola lactea</i> Temm. ....	342
Family	JACANIDAE. ....	342
	259 <i>Hydrophasianus chirurgus</i> (Scop.) ....	343
Family	CHARADRIIDAE. ....	344
Sub-family	CHARADRIINAE. ....	345
	260 <i>Arenaria interpres interpres</i> (Linn.) ....	346
	261 <i>Lobivanellus indicus indicus</i> (Bodd.) ....	347
	262 <i>Sarciophorus malabaricus</i> (Bodd.) ....	348
	263 <i>Chettusia gregaria</i> (Pall.) ....	349
	264 <i>Squatarola squatarola hypomelana</i> (Pall.) ..	349
	265 <i>Pluvialis dominicus fulvus</i> (Gmel.) ....	350
	266 <i>Charadrius leschenaulti</i> (Less.) ....	351
	267 <i>Charadrius mongolus atrifrons</i> (Wagler) ...	351
	268 <i>dubius jerdoni</i> (Legge) ....	352
	269 <i>dubius curonius</i> (Gmel.) ....	353
	270 <i>alexandrinus alexandrinus</i> (Linn.) ....	353
	271 <i>alexandrinus seebohmi</i> (Hartert). ....	354
Sub-family	HAEMATOPIDINAE ....	355
	272 <i>Haematopus ostralegus longipes</i> <i>Butorlin</i> . ...	355
	273 <i>Himantopus himantopus himantopus</i> (Linn.) ....	356
	274 <i>Recurvirostra avocetta avocetta</i> Linn. ....	357
Sub-family	TOTANINAE. ....	357
	275 <i>Numenius arquatus lineatus</i> (Cuvier) ....	360
	276 <i>phaeopus phaeopus</i> (Linn.) ....	361
	277 <i>Limosa limosa limosa</i> (Linn.) ....	362
	278 <i>Terekia cinerea</i> (Guldenstat) ....	363
	279 <i>Tringa hypoleuca</i> Linn. ....	363
	280 <i>glareola</i> Linn. ....	364
	281 <i>ochropus</i> Linn. ....	365
	282 <i>stagnatilis</i> (Becks.) ....	366
	283 <i>erythropus</i> (Pall.) ....	366
	284 <i>totanus eurhinus</i> (Oberholser) ....	367
	285 <i>nebularia</i> (Gunner.) ....	368
	286 <i>Philomachus pugnax</i> (Linn.) ....	369
	287 <i>Crocethia alba</i> Pall. ....	370
	288 <i>Erolia minuta</i> (Leisler) ....	371
	289 <i>subminuta</i> (Midden.) ....	371
	290 <i>temminckii</i> (Leisler) ....	372
	291 <i>ferruginea</i> (Brunnick) ....	373
	292 <i>Limicola falcinella falcinella</i> (Pontop.) ....	374
	293 <i>Limicola falcinella falcinella</i> (Pontop.) ....	374

		Page
Sub-family	SCOLOPACINAE. ....	375
	294 <i>Scolopax rusticola rusticola</i> Linn. ....	376
	295 <i>Gallinago nemorica</i> Hodgs. ....	377
	296 <i>gallinago gallinago</i> (Linn.) ....	378
	297 <i>stenura</i> (Kuhl.) ....	378
	298 <i>Lymnocryptes minima</i> (Brunn.) ....	379
Family	ROSTRATULIDAE. ....	380
	299 <i>Rostratula benghalensis benghalensis</i> (Linn.)	381
	Order XVI. GAVIAE. ....	382
Family	LABIDAE. ....	383
Sub-family	LARINAE. ....	383
	300 <i>Larus ichthyaetus</i> Pall. ....	384
	301 <i>brunnicephalus</i> Jerd. ....	385
	302 <i>fuscus taimyrensis</i> (Buturlin) ....	385
Sub-family	STERNINAE. ....	386
	303 <i>Chlidonias leucopareia indica</i> (Stevens) ....	389
	304 <i>leucoptera</i> (Temm.) ....	389
	305 <i>Hydroprogne caspia caspia</i> (Pall.) ....	390
	306 <i>Sterna nilotica nilotica</i> Gmel. ....	391
	307 <i>bengalensis bengalensis</i> Less. ....	392
	308 <i>bergii velox</i> (Cretzschmar) ....	393
	<i>Sterna seena</i> Sykes. ....	399
	<i>melanogaster</i> Temm. ....	399
	309 <i>Sterna hirundo hirundo</i> Linn. ....	393
	310 <i>longipennis</i> Nordmann ....	394
	311 <i>dougalli korustes</i> (Hume) ....	394
	312 <i>albifrons sinensis</i> (Gmel.) ....	395
	313 <i>albifrons saundersi</i> (Hume) ....	396
	314 <i>anaetheta anaetheta</i> (Scop.) ....	397
	315 <i>fusca infusca</i> (Licht.) ....	397
	316 <i>Anous stolidus pileatus</i> (Scop.) ....	398
Family	STERCORARIIDAE. ....	400
	317 <i>Stercorarius antarcticus antarcticus</i> (Less.) ..	401
	318 <i>antarcticus maccormickii</i> (Saunders)	402
	319 <i>pomarinus</i> (Temm.) ....	402
	Order XVII. STEGANOPODES. ....	404
Family	PELECANIDAE. ....	404
	320 <i>Pelecanus philippensis</i> Gmel. ....	405
Family	FREGATIDAE. ....	406
	321 <i>Fregata andersoni</i> Mathews. ....	407

		Page
	322 <i>Fregata ariel iredalei</i> <i>Matthews</i> .....	407
Family	PHALACROCORACIDAE .....	408
Sub-family	PHALACROCORACINAE .....	408
	323 <i>Phalacrocorax carbo sinensis</i> ( <i>Shaw</i> ) .....	409
	324 <i>fuscicollis</i> <i>Stephen</i> .....	410
	325 <i>javanicus</i> ( <i>Horsf.</i> ) .....	411
Sub-family	PLOTINAE .....	411
	326 <i>Anhinga melanogaster</i> <i>Pennant</i> .....	412
Family	SULIDAE .....	412
	327 <i>Sula leucogaster plotus</i> ( <i>Forster</i> ) .....	413
	328 <i>Parasula dactylatra personata</i> ( <i>Gould</i> ) .....	413
Family	PHAETHONTIDAE .....	414
	<i>Phaethon indicus</i> <i>Hume</i> .....	415
	329 <i>Phaethon lepturus lepturus</i> <i>Daudin</i> .....	414
	Order XVIII. TUBINARES .....	416
Family	PROCELLARIIDAE .....	416
	330 <i>Oceanites oceanicus oceanicus</i> ( <i>Kuhl.</i> ) .....	417
	331 <i>Puffinus leucomelas</i> ( <i>Temm.</i> ) .....	418
	332 <i>pacificus hamiltoni</i> <i>Matthews</i> .....	418
	333 <i>carneipes carneipes</i> ( <i>Gould</i> ) .....	419
	334 <i>Daption capensis</i> ( <i>Linn.</i> ) .....	419
	Order XIX. HERODIONES .....	420
	Sub Order PLATALEAE .....	420
Family	IBIDIDAE .....	421
	335 <i>Threskiornis melanocephalus melanocephalus</i> ( <i>Lath.</i> ) .....	421
	336 <i>Plegadis falcinellus falcinellus</i> ( <i>Linn.</i> ) .....	422
Family	PLATALEIDAE .....	422
	337 <i>Platalea leucorodia major</i> ( <i>Temm.</i> ) .....	423
	Sub-Order CICONIAE .....	423
Family	CICONIIDAE .....	423
	338 <i>Ciconia ciconia asiatica</i> ( <i>Svertz.</i> ) .....	424
	339 <i>Dissoura episcopa episcopa</i> ( <i>Bodd.</i> ) .....	425
	340 <i>Xenorhynchus asiaticus asiaticus</i> ( <i>Lath.</i> ) .....	425
	341 <i>Leptoptilus javanicus</i> ( <i>Horsf.</i> ) .....	426
	342 <i>Pseudotantalus leucocephalus leucocephalus</i> ( <i>Penn.</i> ) .....	427
	343 <i>Anastomus oscitans</i> ( <i>Bodd.</i> ) .....	427
	Sub-Order ARDEAE .....	428
Family	ARDEIDAE .....	428
	344 <i>Ardea purpurea manillensis</i> <i>Mayer</i> .....	431

		Page
	345 <i>Ardea cinerea cinerea</i> (Linn.)	431
	346 <i>goliath</i> (Cretzschmar)	432
	347 <i>Egretta alba modesta</i> (Gray)	433
	348 <i>intermedia intermedia</i> (Wagler)	433
	349 <i>garzetta garzetta</i> (Linn.)	434
	350 <i>Bubulcus ibis coromandus</i> (Bodd.)	434
	351 <i>Demigretta sacra asha</i> (Sykes)	435
	352 <i>Ardeola grayii</i> (Sykes)	436
	353 <i>Butorides striatus javanicus</i> (Horsf.)	436
	354 <i>Nycticorax nycticorax nycticorax</i> (Linn.)	437
	355 <i>Gorsachius melanolophus</i> (Raffles)	438
	356 <i>Ixobrychus sinensis</i> (Gmel.)	439
	357 <i>cinnamomeus</i> (Gmel.)	440
	358 <i>Dupetor flavicollis flavicollis</i> (Lath.)	441
	Order XX. PHOENICOPTERI	442
Family	PHOENICOPTERIDAE.	442
	359 <i>Phoenicopterus ruber antiquorum</i> (Temm.)	442
	Order XXI. ANSERES	444
Family	ANATIDAE.	444
Sub-family	PLECTROPTERINAE.	445
	360 <i>Sarcidiornis melanota</i> (Penn.)	446
	361 <i>Nettopus coromandelianus</i> (Gmel.)	446
Sub-family	ANSERINAE.	448
	362 <i>Anser anser</i> (Linn.)	448
Sub-family	ANATINAE.	449
	363 <i>Dendrocygna javanica</i> (Horsf.)	451
	364 <i>fulva</i> (Gmel.)	452
	365 <i>Casarca ferruginea</i> (Pall.)	453
	366 <i>Anas poecilorhyncha poecilorhyncha</i> Forster	553
	367 <i>Chaulelasmus streperus</i> (Linn.)	454
	368 <i>Nettion crecca crecca</i> (Linn.)	455
	369 <i>Dafila acuta</i> (Linn.)	456
	370 <i>Querquedula querquedula</i> (Linn.)	457
	371 <i>Spatula clypeata</i> (Linn.)	458
Sub-family	FULIGULINAE.	459
	<i>Netta rufina</i> (Pall.)	459
	Order XXII. PYGOPODES	461
Family	POGONIDAE.	461
	372 <i>Pogonocherus alba alba</i> (Linn.)	461



## BIRDS AND THEIR CLASSIFICATION

There is no difficulty in distinguishing birds from any other animals, as the possession of feathers is a character held by them and by no other vertebrates. Many of their remaining notable features are shared by certain mammals, or by reptiles. The external parts of a bird are shown in the diagram at page 7, and as my space is limited I do not propose to discuss the general structure. Those who desire information are referred to any of the many works on Natural History which deal with the subject.

Living birds are divided into two main Sub-Classes. Until recently the sub-division was based on the formation of the sternum, or breast-bone. The *Carinatae*, or flying birds were those in which the breast-bone is keeled to form a support for the greatly developed muscles required in flight; while the flightless Ostriches and their kin, in which the breast-bone has become rounded, were termed the *Ratitae*. As, however, certain also of the *Carinatae* have lost the power of flight, and consequently possess a rounded breast-bone, a more satisfactory classification has recently been based on the structure of the bones of the palate. According to this classification the former *Ratitae* and *Carinatae* become respectively the *Palaeognathae* and *Neognathae*. All birds found in Ceylon belong to the *Neognathae* and we have no flightless species.

The Sub-Class is divided into divisions called Orders. Classification into these Orders is a task frequently of some difficulty, as there are thousands of species, while in spite of wide diversities in size, colour and outward form the whole range of birds is wonderfully alike in structure, so that the differences between the most divergent Ornithological Orders are not nearly so great as those between even nearly allied Orders among the mammals. Consequently few systematic ornithologists wholly agree in the results of their classification, though modern research and comparison with extinct forms is to a great extent clearing the ground.

The chief points of structure upon which classification is based are the formation of the bones of the palate, the arrangement of the plantar tendons in the leg, the muscles of the syrinx, or organ of voice,

and the pterylosis, or pattern in which the feathers spring out of the wings and various regions of the body.

Fortunately, in Ceylon, we have few species which are regarded as ornithological enigmas, and nearly all our birds may be grouped into fairly clear-cut Orders, which the beginner, after a short working acquaintance with Ceylon birds, can soon recognize from their outward structural characters. I do not propose therefore to go further into technicalities, but hope that the short summary of habits and outward features, given in my remarks on each Order as it occurs, will be sufficient for identification.

The relationship and grouping of the various Orders among themselves is also at present a matter of some uncertainty. I here follow the most recent though admittedly tentative classification of Indian birds by Mr. E. C. Stuart Baker, one of the foremost authorities on the birds of the Oriental region.

The various Orders are again split up into Sub-Orders, Families, Genera and Species. Of recent years a further sub-division into Sub-species has been adopted, where desirable. This further sub-division is beginning to throw a flood of light on the geographical distribution, including the migrations, of the various forms, and on their gradual evolution. As it is here used for the first time in any book dealing with Ceylon birds I venture to explain a little more fully the reasons which have led to the adoption of this trinomial system and the manner in which it is worked.

Thirty years ago, when Oates and Blanford, wrote their standard work on the Birds of British India, the binomial system, founded by Linnaeus in the middle of the eighteenth century, was still universally used in all branches of Natural History. That is, each species was described scientifically by its generic and specific names. For instance, the House Sparrow was known as *Passer domesticus*. Since then, however, ornithological workers, especially field workers, have gradually realized that this system was hardly sufficient in the case of many widely distributed species. In species which ranged over all India it was often apparent that forms from the deserts of North West India differed noticeably and constantly, on the one hand, from the forms met with in the Himalayas, and, on the other hand, from those found in Ceylon, or Southern Burma, though each geographical race passed into the next by the most gradual transitions throughout the intervening areas. Under the old binomial system all these geographical races had either to be lumped together under one specific name, or split into a variety of species with very minor distinctions. Sometimes one course was adopted, sometimes the other. In Oates and Blanford the geographical races of the Madras Red-vented Bulbul, which is found practically all over

India and Burma, are divided into six different species. On the other hand, the common Indian Crow-Pheasant, in which there are several well-marked geographical races, is treated as one species.

To meet the situation, modern ornithologists, wherever necessary, have adopted a trinomial system, which enables them to differentiate sub-species. For the definition of a sub-species I quote Mr. Stuart Baker: "A sub-species is a geographical race or variation differing in some respect from the form first described as the species, yet linked to it by other intermediate forms found in intervening areas. It is essential, however, that to entitle such a variation to a trinomial, it should have arrived at a point in its evolution sufficiently advanced to enable it to exist as a permanent form within some definite area. From this it will be seen that a sub-species is merely a term for a species in the making."\*

The principle on which the system is worked may be explained briefly as follows: Where it is necessary to divide a species, the sub-species identical with the form from which the species was originally described is expressed by repeating the specific name; the new sub-species is given an appropriate sub-specific name. Thus, if one wishes to describe as a new sub-species the Ceylon form of the Magpie Robin—*Copsychus saularis*—it may be shown as *C. saularis ceylonensis*. The Indian form, to which the name *C. saularis* was first applied, would become *C. saularis saularis*. Where two or more forms, originally ranked as separate species, are to be re-grouped as sub-species, the form which has the oldest scientific name takes precedence. Thus, the Common Indian Mynah and the Ceylon Mynah, which formerly were treated as separate species—*Acridotheres tristis* and *A. melanosternus*—are now considered to be merely sub-species of the same bird. *A. tristis* was named by Linnaeus in 1766, *A. melanosternus* by Legge in 1879. The Indian form, therefore, becomes *A. tristis tristis*, and the Ceylon form *A. tristis melanosternus*.

\* "Sub-species and the field-naturalist" Journal. Bombay Nat. Hist. Soc. May 1910 Vol. XXVI. Part II. P. 518.





## Order I. PASSERES

### *Passerine Birds*

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The structural key-marks distinguishing the *Passeres*, as found in Ceylon, lie mainly in the formation of the bones of the palate and in the disposition of the two tendons, known as the deep plantar tendons, which run down the leg and serve the toes. The arrangement of the palatal bones is that known as "aegithognathous," in which the vomer is truncated in front. In all Ceylon members of the Order the arrangement of the deep plantar tendons is typically passerine: i.e. one tendon serves the front toes and the other the hind toe, both tendons being wholly disconnected and disposed in such a manner that the hind toe is mobile and worked independently of the other three. This combination of an aegithognathous palate with passerine deep plantar tendons is found in all our Ceylon *Passeres* and will serve to distinguish them from members of any other Order. I do not propose, however, to go further into these structural characters as it is not a very difficult matter to diagnose all Ceylon forms of the Order by outward marks as follows.

They are all birds of medium or small size; with the single exception of the Crow family, they never run larger in the body than a Thrush or Mynah, and are frequently smaller. The young when hatched are in a helpless and almost naked condition, being clothed at first merely with a few isolated patches of down. The bill is never furnished at the base with a cere, or membrane of soft skin. The legs are feathered down to, but no further than the tarsal joint. Lastly, the outward structure of the feet is typically constant. The first, or hind toe, also known as the hallux, is always present, and is movable independently of the three front toes, while the front toes are separated from each other down to their bases. Compare, for instance, a Crow—a Passerine bird—with an Indian Roller, often erroneously called a Blue Jay. Both birds are of the same size and build, but in the Roller the middle front toe is united to the outer toe at the extreme base, and to the inner toe for the length of the first joint. Again in certain other orders, such as the Cuckoos, the feet are "zygodactylic," i. e. two toes only are turned to the front while the first and fourth toes are directed backwards.

The *Passeres* are by far the largest Order of birds, comprising at least half of all living species. They are also generally acknowledged

to be the most specialized and most highly organized Order. In other words, at the present general stage of evolution they are the dominant ornithological Order, and, as Darwin has shown, dominant groups manifest the greatest tendency towards variation. This is well illustrated by a glance at the list of birds occurring in the Indian Empire. The Passerine species show, on the whole, a far greater tendency to divide into geographical races, or sub-species, while the species themselves, on an average, are restricted to smaller areas than less specialized and more widely ranging members of other Orders. Hence it is not surprising to find, in a comparatively small and isolated area like Ceylon, firstly that the species and sub-species peculiar to the Island, occur largely among the *Passeres*, and, secondly that the number of Passerine birds in our list does not form such a large proportion of the total as in the list covering the vast area of the Indian Empire. The actual figures from the Ceylon list are 120 passerine forms out of a total of 372.

With such a large assemblage of forms belonging to a single Order and possessing the same main structural characters, the task of classification is extraordinarily difficult, and few ornithologists agree in all particulars regarding the grouping of the various species into Families, or the sequence in which the Families themselves should be arranged. The Order is divided primarily into two main groups, based on a difference in the structure of the syrinx, or organ of voice. In the *Diacromyodi* the intrinsic muscles of the syrinx are attached to the ends of the opened rings of the bronchial tubes; in the *Anisomyodi* these muscles are much simpler and are attached to the middle of the rings. This division need not, however, greatly trouble the Ceylon student. The *Anisomyodi* are found mainly in the New World, and only one species of the group, the Indian Pitta—*Pitta brachyura*—occurs in Ceylon. It happens to possess a very distinctive plumage, and is also to be diagnosed by the formation of the wing. It has ten primary wing quills\* and the first primary is nearly as long as the second. Many Ceylon *Passeres* have ten primaries, but in every other such case the first primary is noticeably smaller than the second.

As regards the *Diacromyodi*, I propose, with one or two small modifications in the sequence of Families, to follow the classification noted by Stuart Baker in the Scheme of the Order given in his recently published Vol. i of the Second Edition of "Birds" in the "Fauna of British India" series. According to this classification twenty-four Families belonging to the Sub-Order are found in Ceylon. Some of these Families may be

\* As a matter of scientific accuracy all "Nine primaried" *Passeres* possess a vestigial 10th primary—the remicle—and this vestigial primary is also present in many "ten-primaried" forms. When making a list of birds, therefore, or the like, it should be understood that the remicle is included.

marked off by clear, though minor, structural characters. For instance, the Larks have the hinder side of the tarsus scutellated; the Sun-birds and Flower-peckers have the edges of the bill finely serrated; the Swallows, Wagtail Family and Sparrows have only nine primaries; while the Weaver-bird Family and the Sparrows have conical bills, in which the nostrils are set very far back and lie nearer to the ridge than to the cutting edge of the mandible. The remaining Families, however, all possess ten primaries, the first being small, and no structural differences sufficient or constant enough to serve as sharply defined lines of division.

The classification of these remaining Families follows a system of grouping, pointed out by Oates, and based on the types of plumage normally found in the young of each Family. In the first group the nestling plumage is like that of the adult female, but is duller and sometimes darker; in the second group the nestling is normally mottled, or scaly-patterned; in the third cross-barred; in the fourth spotted, or flecked with white; in the fifth the nestling resembles the adult, but is brighter; in the sixth the plumage of the nestling is streaked.

I give below a short synopsis of the Passerine Families found in Ceylon. Where possible, in addition to the structural points, I have given short remarks on distinctive characters of form, colour, and size, which will render identification more easy for the beginner; but it must be remembered that in some cases these latter distinctions hold good only for the limited number of forms occurring in this Island. I hope that this, synopsis, taken in conjunction with the short descriptions given in the text at the beginning of each Family and Sub-family group, will enable beginners to get a fair grasp of the different Families belonging to this order, which are found within our limits.

## SYNOPSIS OF PASSERINE FAMILIES FOUND IN CEYLON

### Sub-Order *Diacromyodi*

1.—Wing with ten primaries, not counting a rudimentary 11th—the remicle—which may be present but is too small to be seen; edges of mandibles not serrated; nostrils clear of the line of the forehead.

A.—Plumage of nestling like that of adult female,

- (a) Nostrils completely hidden by bristles or feathers.
- (1) Size large, length over 16 inches ; 1st primary over half-length of 2nd. *Corvidae* (Crow-family)
  - (2) Size small, length,  $5\frac{1}{2}$  inches ; 1st primary not over half length of 2nd. *Paridae* ( Tits )
- (b) Nostrils bare, or merely overhung by hairs or plumelets.
- (1) Climbing birds ; size small ; hind-toe much larger than inner. *Sittidae* (Nuthatches).
  - (2) Inner and hind toe equal ; wing short and rounded ; tarsus generally long and strong. *Timaliidae* (Babblers &c.)
  - (3) Inner and hind toe equal ; wing more pointed ; tarsus short ; some hairs on the nape. *Pycnonotidae* (Bulbuls).
- B.—Plumage of nestling normally mottled, or scaly-patterned.
- (a) Nostrils not covered by horizontal hairs ; legs and feet stout. *Turdidae* (Thrushes).
  - (b) Nostrils covered by horizontal hairs ; legs and feet weak. *Muscicapidae* (Flycatchers.)
- C.—Plumage of nestling cross-barred.
- (a) Folded wings not reaching beyond middle of tail.
    - (1) Shafts of rump feathers soft. *Laniidae*. (Shrikes.)
    - (2) Shafts of rump feathers spiny. *Pericrocotidae* (Cuckoo Shrikes and Minivets.)
  - (b) Folded wings reaching to tip of tail. *Artamidae* (Swallow -Shrikes.)
- D.—Plumage of nestling marked with white ; tail forked. *Dicruridae* (Drongos.)
- E.—Plumage of nestling like that of adults but brighter. *Sylviidae* (Warblers.)
- F.—Plumage of nestling streaked.
- (a) Rictal bristles present.
    - (1) Nostrils covered with hairs ; plumage blue. *Irenidae* (Fair Blue-bird.)
    - (2) Nostrils bare ; plumage bright yellow and black. *Oriolidae* ( Orioles . )

- (3) Nostrils bare; plumage entirely glossy black.
- (b) No rictal bristles.
- II.—Wing with either nine or ten primaries (excluding the remicle); edges of mandibles not serrated; hinder part of tarsus smooth; bill conical, the nostrils pierced within the line of the forehead and closer to the ridge of the bill than to the cutting edges.
- (1) With ten primaries, the first small; size small or very small.
- (2) With nine primaries, the first and second nearly equal; size small.
- III.—Wing with nine primaries (excluding the remicle); the first and second nearly equal; edges of mandibles not serrated; hinder parts of tarsus smooth; bill not conical.
- (1) Wings long and pointed; in the folded wing the longest secondaries fall short of the tips of the primaries.
- (2) In the folded wing the longest secondaries reach almost to the tips of the primaries.
- IV. Hinder part of tarsus scutellated; wing in all Ceylon forms with ten primaries, the first being small.
- V.—A white ring of small, close-set feathers round the eye; tongue split into two, each half broken up into a bunch of brush-like fibres; size very small.
- VI. Bill with the terminal third of both mandibles finely-serrated; size very small.
- (1) Bill long, curved, and cylindrical.
- Eulabesidae*  
(Grackles).  
*Sturnidae*  
(Mynahs and Starlings)
- Ploceidae*  
(Weaver Bird, family).  
*Fringillidae*  
(Finches and Sparrows).
- Hirundinidae*  
(Swallows.)
- Motacillidae*  
(Wagtails and Pipits.)
- Alandidae*  
(Larks)
- Zosteropidae*  
(White-eyes).
- Nectariniidae*  
(Sun-birds.)

(2) Bill short and triangular.

*Dicaeidae*  
(Flower-  
peckers.)

Sub-Order *Anisomyodi*

Wing with ten primaries (excluding the remicle,) the  
first being large.

*Pittidae* (Pittas)

## Family CORVIDÆ

### Crows, &c.

The *Corvidæ* are the first of a group of five Families found in Ceylon, in which the plumage of the nestling resembles that of the adult female, but is duller and sometimes darker. Structurally they differ from the *Paridae*—Tits—in that the first primary is considerably over half the length of the second, and from the other three Families of the group in that the nostrils are completely hidden by feathers and bristles instead of being bare, or only partially concealed. The *Corvidæ* are represented in Ceylon by three birds: the two familiar species of Crow and the beautiful Ceylon Jay, or more properly Magpie, which is found only in the hills. They are our largest Passerine birds. The bill is fairly powerful; the nostrils are clear of the line of the forehead, but are hidden by feathers and bristles. The legs and feet are stout, the back of the tarsus is smooth, the front scutellated—i.e., covered with shield-like plates—the hind toe is well developed, but inferior in length to the middle toe. The sexes are alike, and there is only one moult, in the autumn. The plumage of the nestling is paler than that of the adult.

In the genus *Corvus* the plumage is mainly black; the bill is slightly curved at the tip, but not notched; the nostrils lie far forward, and the bristles which conceal them are long and stiff; the wings are long and pointed; the tail moderate and rounded. In the genus *Cissa* the plumage is brightly coloured; the bill has a perceptible notch at the tip; the nostrils are near the base of the bill, and the concealing bristles are rather soft and short; the wings are short and rounded, and the tail long and graduated.

#### Key to Ceylon Corvidæ

A.—Plumage mainly or wholly black, genus *Corvus*.

(1) Wholly black.

*Corvus coronooides culminatus* (Black Crow).

(2) Neck dark smoky gray.

*C. splendens protegatus* (Ceylon House Crow).

B.—Plumage mainly bright blue and chestnut.

*Cissa ornata* (Ceylon Magpie).

1. **CORVUS CORONOIDES CULMINATUS****The Black Crow**

*Kākkā, kalu kaputā*, Sinhalese; *andan-kākam*, Tamil.

*Corvus culminatus* Sykes. P.Z.S. 1832. p. 96 (Deccan); *Corone macrorhynchus*, Legge p. 346; *Corvus macrorhynchus*, Oates & Blan. Vol. I. p. 17.

*Description*.—Entire plumage black; hind-neck and sides of neck glossless; scapulars, wing coverts, rump, and outer tail feathers glossed with purple; throat and breast glossed with dark steel blue; the bases of the body feathers light smoke gray in birds from the dry districts, darker and brownish in birds from the wet zone. Pied and albino specimens are met with occasionally, and one bird in the Colombo Museum is a pale smoky brown, slightly darker on the back and abdomen.

Bill black; iris hazel brown; legs and feet black.

Dimensions rather variable: average length about 18; wing 11·5; tail 7; tarsus 2·1; bill from gape 2·25. Males are rather larger than females.

*Distribution*.—Found all over the low-country, except on the strip round the coast line, where it is largely replaced by the next species. Above 2,000 feet its numbers diminish, and in most localities over about 4,000 feet it appears merely as a casual visitor, but sometimes in fair numbers. This sub-species also occurs in S. India. Allied sub-species are found in N. India, Australia, S. E. Asia, China and Japan.

*Habits*.—This Crow is fairly abundant, but is not nearly so gregarious as the next species. In the villages and jungles it is seen usually in pairs, but in the inland towns it may be met with in greater numbers. It is fairly omnivorous, feeding on all sorts of garbage and carrion, and is a great egg thief. The breeding season is from June till August. The nest is a considerable structure of twigs placed high up in a tree, or on the crown of a coconut palm. There is a fairly substantial rough lining of coconut fibre, or of grass, fine roots, wool, &c. The eggs, three or four in number, are longish ovals, as a rule slightly pointed at one end. The ground colour is light green, at times with a blue or gray tinge. Speckled with brown and more washy under markings of brownish gray. Average size 1·63 by 1·12.

2. **CORVUS SPLENDENS PROLEGATUS****The Ceylon House Crow**

*Kākkā, kaputā*, Sinhalese; *kākam*, Tamil.

*Corvus splendens prolegatus* Madar. Orn. Monatsb. xxii. p. 195 (1904) (Colombo); *Corone splendens*, Legge p. 349; *Corvus splendens*, Oates & Blan. Vol. I. p. 90.



*Description.*—Forehead, crown, and lores glossy black; chin and throat black with a slight, steel blue gloss; back, wings, and tail black glossed with purple and greenish; the nape, ear coverts, sides and back of the neck dark smoky gray; the breast darker, almost black; remainder of lower parts dull black, with a slight greenish gloss; the bases of the body feathers white. Birds from the dry districts appear to be quite as dark as those from the wet zone. Pied and albino specimens are occasionally seen. Young birds are duller and less glossy.

Bill black; iris dark brown; legs and feet black.

Dimensions a little variable. Length about 16·5; wing 10·5 tail 6·25; tarsus 1·9; bill from gape 1·9.

*Distribution.*—Occurs all round the coast, except, perhaps, in the waste tract between Hambantota and Arugam Bay. Various geographical races of this Crow are found throughout India and Burma. The form occurring in Ceylon is now recognized as a distinct sub-species. Unlike its Indian relatives, the Ceylon form is never found far from the sea. In Legge's time it was rare even on the coast south of Kalutara on the west and Arugam Bay on the east; but nowadays it is common, at any rate as far east as Kirinde in the Hambantota District. It is especially numerous in the towns and villages throughout its range, but generally avoids uninhabited stretches of coast line. Where found in any numbers, it has driven out the Black crow. The curious distribution of the two species is well seen in the Tangalla district of the Southern Province. In the coastal bazaars, such as Tangalla and Ranna, and at Weeraketiya and other villages, about 8 miles inland, the present species occurs; whereas in the intervening fields and chena tracts the Black Crow still holds its own.

*Habits.*—The House Crow is even more omnivorous and far more gregarious than the last species, while its cunning and thievish impudence are well known to all Colombo residents. The breeding season is from May to August, but mainly in May and June. The nest is similar to that of the Black Crow, but the birds generally build in scattered rookeries. The eggs, generally four in number, are oval, slightly pointed at the smaller end. The ground colour is usually brighter than in eggs of the last species, the markings are darker and more profuse, while the under markings are seldom so noticeable, and are at times altogether absent. Average size 1·4 by 1·06.

## 3. CISSA ORNATA

## The Ceylon Magpie

*Kehibellā*, Sinhalese.

*Pica ornata* Wagler. Isis. 1829. p. 749 (Ceylon); *Cissa ornata*, Legge p. 353; Oates & Blanford. Vol. I. p. 29.

*Description*.—Head, neck, upper breast, and upper back rich glossy chestnut; rest of body blue, shading into lighter blue on the lower back, flanks, and abdomen; the wing coverts shade from the hue of the back into dull brown, faintly washed with blue on the primary coverts; wing quills chestnut on the outer, blackish brown on the inner webs, the inner webs of the tertiaries deep blue; thighs dusky brown washed with royal blue; tail deep blue, the outer edge of the outside feathers and the tips of all the feathers white, with a more or less irregular patch of black between the blue portion and the white tips.

In young birds the tail is much shorter and the plumage paler.

Bill, legs, and feet coral red; iris light brown; eyelids red and wattled at the edges, orbital skin rather paler.

Length about 18.25; wing 6.5; tail 10.5; tarsus 1.7; bill from gape 1.6.

*Distribution*.—Peculiar to Ceylon. It is confined to the hills, but in the damp south-west districts it is found as low down as 1,000 feet. It probably visits the lower ranges only in the north-east monsoon.

*Habits*. A shy bird which goes about in small parties and keeps to heavy jungle. It spends most of its time in the branches of tall trees, but also frequents the undergrowth in search of lizards and beetles, which together with wild fruits form its food. The cry is said to resemble the clanking of a loose connecting rod on a locomotive. It appears to breed in the higher hill ranges during the north-east monsoon. The nest is placed in the top of a tree and much resembles that of a Crow, but is not so carelessly put together. The eggs are bluish green, thickly spotted all over with light umber brown over larger under markings of bluish gray. Size about 1.3 by .98.

## Family PARIDAE

*Tits*

Oates in the "Fauna of British India" treats the Tits as a Sub-family of the *Corvidae*, but by most ornithologists they are raised to the rank of a Family. As in the *Corvidae*, the nestling plumage resembles

that of the adult, though paler, and the nostrils are concealed by bristles. The first primary, however, does not exceed half the length of the second.

Tits are found over the greater part of the globe; but only one representative, the Gray Tit, so familiar to up-country residents, is found in Ceylon. They are all small birds, and bear a great family resemblance. The bill is short and conical, and though somewhat curved, is not hooked at the tip. The rictal bristles are short, those concealing the nostrils short and thick. The wings are weak and rounded. The legs and feet are fairly stout. In the genus *Parus* there is no crest, and the tail is slightly rounded. In their habits all Tits are more or less alike, going about in pairs or small parties, and roaming actively about the trunks and branches of trees in search of the insects and seeds on which they feed.

#### 4. PARUS MAJOR MAHRATTARUM

##### The Southern Gray Tit (Pl. I. Fig. 1.)

Vernacular names not recorded.

*Parus major mahrattarum* Hartert, Nov. Zool. xii. p. 499. (1905) (S. Punjab); *P. atriceps*, Legge. p. 557; Oates & Blan. Vol. I p. 46.

*Description*.—Head, neck, and chest black, save for a broad white patch on the cheeks and ear coverts; a broad band of black runs down the centre of the breast and abdomen; the nape is bordered behind by a whitish patch; the rest of the back, the scapulars, rump, and the wing coverts bluish gray, the greater wing coverts edged with gray and broadly tipped with white; wing quills blackish brown, the longer primaries narrowly and the tertiaries more broadly edged with white; upper tail coverts deep bluish gray; tail black, the outer feathers white with broad, black inner margins and black shafts; the sides of the breast and abdomen whitish, deepening on the flanks to the hue of the back; under tail coverts black in the centre, white at the edges.

In young birds the grey of the back is tinged with yellow and the white of the under parts with buff.

Bill black; iris brown; legs and feet lead colour.

Length about 5·5; wing 2·75; tail 2·4; tarsus ·7; bill from gape ·5.

*Distribution*. The Gray Tit is found almost throughout the Indian Empire. The present sub-species occurs in S. India and Ceylon. In Ceylon it is common above about 2,000 feet. In the low-country forests it is rare, but seems to be resident here and there, and appears at certain seasons in other localities. It is occasionally seen in Colombo gardens, where in one or two instances it has been known to breed.

*Habits*.—This is a very familiar species in the hills, and may be seen in almost every up-country garden, busily engaged hopping about tree

trunks and branches. In the low-country it keeps mainly to the forests. In the hills the breeding season appears to extend from March to July. In the Puttalam District I have found it building its nest in April, while in Colombo a pair were observed breeding in February. The nest is rather a loose bunch of moss, feathers, hair, or coir fibre placed in a hole of a tree, wall, or bank. There are four to six eggs. They are oval in shape; the ground colour is white, or pinkish white, with red spots generally more or less confined to a ring round the larger end. Average size .69 by .50.

## Family SITTIDAE

### *Nuthatches*

The Nuthatches are a Family of small climbing birds found in temperate and warm climates all over the world, with the exception of South America, and Africa, south of the Sahara. The foot is adapted for climbing, the hind toe and claw being greatly developed and the inner front toe shortened. The hind surface of the tarsus is smooth. The bill is about as long as the head, straight, and wide at the base. The nostrils are clear of the line of the forehead, and are overhung by hairs. The rectal bristles are well developed. The wing, which has ten primaries, is rather pointed; the first primary is less than half the length of the second. The tail of twelve feathers is short and practically square. The plumage of the two sexes is generally different, and there is only one moult a year.

Nuthatches are of non-migratory habits. They feed both on nuts and insects, and nest in holes of trees, or of rocks. Only one species is found in Ceylon.

## 5. SITTA FRONTALIS FRONTALIS

### The Velvet-fronted Blue Nuthatch

*Papu-kurullā*, Sinhalese.

*Sitta frontalis* Horsf. Trans. Linn. Soc. xiii. p. 162 (1821) (Java); *Dendrophila frontalis*, Legge p. 560; *S. frontalis*, Oates & Blan. Vol. I. p. 307.

*Description*.—Male: Lores, a broad band across the forehead and a long streak over the eye to the nape deep velvet black; upper plumage and wing coverts deep lavender blue; wing quills dull black, the first two primaries unmarked, the outer webs of the remaining primaries edged with light blue, the secondaries edged with the blue of the back, the

tertiaries almost entirely blue; the middle feathers of the tail blue, the remainder dull black, edged and tipped with blue; ear coverts lilac; chin and throat whitish; the rest of the lower parts brownish lilac.

Females have no black eyebrow streak, and the lores are generally washed with blue.

Bill coral red, the tip of the upper mandible blackish; iris yellow; eyelids lead colour; legs and feet brownish.

Length 5; wing 3; tail 1·8; tarsus ·7; bill from gape ·7.

*Distribution*.—Found throughout the hills and in the tall forests of the low-country. This sub-species occurs throughout the greater part of India, and extends through Burma to Java.

*Habits*.—A dainty little bird, which attracts notice by its velvety blue plumage and vivid red bill. It is generally found in small troops, actively running up and down, or round and round tree trunks and large boughs. It never remains long on one tree, and when descending it always proceeds head first. The cry is a sharp little "chick, chick, chick." The breeding season appears to be from February to May. The nest is a small pad of feathers, moss, and hair in a tiny hole in a tree. The four eggs are white spotted with red, and measure about ·7 by ·56. The birds when approaching the nest hole generally alight above it and run down into it.

## Family TIMALIIDAE

### *Babblers, &c.*

In former years this Family, named by some authors *Timaliidae* and by others *Crateropodidae*, was made to contain a large assemblage of rather heterogeneous forms and lay open into small measure to the jibe that it was an ornithological waste-paper basket. In no other Indian Family has the classification been subjected to such a process of sifting and sorting by more recent authorities and there have been great changes even since the time of Oates.

That authority in the 1st Volume of the Birds of British India divided the Family into six Sub-families.

<i>Crateropodinae</i>	Larger Babblers.
<i>Timeliinae</i>	Small Babblers.
<i>Brachypteryginae</i>	Whistling Thrushes and Short Wings.
<i>Sibiinae</i>	Confined in Ceylon to two species of White-Eye.
<i>Trochilinae</i>	Bush and Green Bulbuls.

Since then the *Brachypteryginae*, so far as Ceylon forms are concerned, have been transferred to the *Turdidae*—Thrushes, with the exception of *Elaphrornis*, which is most probably a Warbler, and *Irena*, which has been given family rank. The White-Eyes and the Bulbuls have also been raised to the status of separate Families and placed, the former near the *Nectariniidae*, and the latter between the present Family and the *Turdidae*. Lastly, according to his most recent classification, Stuart Baker, in Vol. 1 of the 2nd Edition of the Birds of British India, which I here follow, merges the *Timaliinae* with the *Crateropodinae* in one Sub-family as he can find no hard and fast dividing line between the two.

As the generic name *Crateropus* is pre-occupied, the term *Crateropodidae* must be discarded and the Family known as the *Timaliidae*. The Family as thus reconstituted falls within that group of Passeres in which the plumage of the nestling resembles that of the adult female, but is duller and in some cases paler. The further characteristics are as follows: The nostrils are never entirely concealed by hairs or bristles; rictal bristles are present; there are twelve tail feathers; the inner and hind-toe are equal; the feet and tarsi are generally powerful; the wing is short and rounded and the flight weak. All the forms are non-migratory; in fact one of the main features of the Family as thus defined is the absence of any migratory species. As a consequence, there is a tendency throughout the group for the forms to split up into species of restricted habitat, or into well-marked geographical races, i.e., sub-species. A large proportion of the forms found in Ceylon are specifically or sub-specifically distinct from their nearest Indian allies. Further, there is no doubt that in several of our Ceylon forms, birds from the damper low-country forests tend, as a rule, to be darker than specimens from the drier forest tracts, or from the more open patana districts up-country. In several cases these paler specimens have been, by some ornithologists, sub-specifically distinguished from the darker. In each case, however, the distinction is based solely on paler tones in the plumage, generally unaccompanied by any well-marked differences in size, &c. It is a well-known fact that the hue of the plumage is largely influenced by the density of the rainfall. Since, however, the rainfall zones in Ceylon are rather complicated I have hesitated to accept a sub-specific division based solely on paler shades of plumage. The geographical distribution of the resultant sub-species would be about as scattered as that of the country of Cromarty, while in all probability, if large series were collected from all parts of the Island, at least six out of every ten specimens would have to be classed as "intermediate," while only one or two would be recognized as belonging definitely to the

darker or lighter races. In some cases, too, the variation appears to be as much individual as local, and any attempted subdivision would offend against the rule that no two sub-species of the same species can be resident in the same locality. Far more material, than is at present available, is required before any sub-division of such forms can be indisputably accepted.

The Ceylon forms of the Family now fall into only two Sub-families, divided thus :

- |                         |   |
|-------------------------|---|
| (1) <i>Timaliinae</i>   | Sexes alike ; plumage sober ; legs and feet strong ; wing short and rounded ; gregarious and mainly terrestrial.  |
| (2) <i>Liotrichinae</i> | Sexes unlike ; plumage brightly coloured ; legs and feet moderate ; wing rather longer and more pointed ; solitary, or found only in small parties ; entirely arboreal. |

#### Sub-Family TIMALIINAE

##### *Babblers*

This Sub-family contains all the Babblers found in Ceylon. It is not however well represented in the Island, though one species—the familiar Seven Sisters—is one of our commonest birds. Out of the Indian list which comprises 35 genera, nearly 100 species and many more sub-species, only eight forms representing six genera occur on our list. Three forms are specifically and four more sub-specifically distinct. They fall naturally into two groups : four larger species of about the size of a Thrush and laying unspotted eggs, and four smaller birds, all under seven inches in length, whose eggs are spotted. The species of the first group pass a good deal of their time in trees, but pick up their food from the ground, hopping along in small troops, and making an incessant chatter as they turn over dead leaves, &c., in search of the insects on which they feed. Their legs are strong, their wings rounded and weak. In the genus *Turdoides*, to which two species undoubtedly belong, the bill is moderately long and only slightly curved. The position of a third species, *T. cinereifrons*, is doubtful. It differs from the other members of the genus in having a black, not a yellow bill, while the covering membrane of the nostrils is bare instead of being half concealed with plumelets. Its eggs are not known with certainty, and may be white. Those of the other species are blue. In the genus *Pomato-*

*rhinus* the bill is as long as the head, slender, and with a pronounced curve. The under plumage is mainly white, the eggs, too, are white.

The four smaller species are rather less gregarious, and are not so noisy. They are skulking in their habits, frequenting bushy places, or the undergrowth in forests, keeping largely to the ground and avoiding observation. In the genus *Dumetia* the feathers of the forehead and crown have rigid shafts, the tail is comparatively long and graduated, and the bill fairly slender. In *Pyciorhis* the bill is deep and not notched, the nostrils are oval and exposed. In *Pellorneum* the bill is slender, the nostrils linear; the tail is graduated and almost as long as the wing; the tarsus and toes are long and stout. In *Rhopocichla* the nostrils are rounded and well exposed, the tail short, and only slightly graduated.

*Key to Ceylon Timaliinae*

I. Larger forms, over 8 inches in length.

A.—Bill fairly stout, not greatly curved; no white in plumage.

Genus *Turdoides*.

(a) Bill yellowish.

(1) Plumage ashy brown; outer web of primaries much paler than inner.

*T. griseus striatus* (Ceylon Babbler).

(2) Plumage rufous brown; outer web of primaries not much paler than inner.

*T. rufescens* (Ceylon Rufous Babbler).

(b) Bill black.

*T. cinereifrons* (Ashy-headed Babbler).

B.—Bill long, slender, and markedly curved; lower plumage largely white.

*Pomatorhinus horsfieldi melanurus* (Southern Scimitar Babbler).

II. Smaller forms, under 7 inches in length.

A.—Forehead and crown not conspicuously darker than the rest of the upper plumage.

(a) Length about 5·6; tail about same length as wing; bill pinkish horn colour.

*Dumetia albigularis albigularis* (Small White-throated Babbler).

(b) Length about 6·5; tail longer than wing; bill black.

*Pyciorhis sinensis nasalis* (Ceylon Yellow-eyede Babbler).



B.—A conspicuous, deep chocolate cap : length about 6·5 : lower parts rusty brown.

*Pellorneum fuscicapillum* (Brown-capped Babbler).

C.—Forehead and cheeks black ; length about 5·5 ; lower parts whitish.

*Rhopocichla atriceps nigrifrons* (Black-fronted Babbler).

## 6. TURDOIDES GRISEUS STRIATUS

### The Ceylon Babbler

*Demalichchā*, Sinhalese ; *vēlai-kāra-kuruvi*, *pubuni*, Tamil.

*Malacocercus striatus* Swains. Zool. Ill. p. 127. (1831) (Ceylon) ; Legge p. 494 ; *Crateropus striatus*, Oates & Blan. Vol. I. p. 112.

*Description*.—Upper plumage, head, neck, and chest pale ashy brown, the feathers with paler gray edges, those of the back also with paler shaft stripes ; wing coverts more uniform brown ; wing quills dark brown, the outer webs with much paler, whitish brown margins ; upper tail coverts slightly more rufous ; tail smoky brown shading into darker brown towards the tip and with numerous cross rays of darker brown ; lower breast, abdomen, and under tail coverts dingy, tawny brown. Birds from the dry districts are slightly paler on the head, neck, and breast, the edges of the feathers having almost a pearly tinge.

Bill pale horny yellow, iris white ; eyelid yellowish ; legs and feet dingy yellowish white.

Length 9·5 ; wing 4·1 ; tail 4 ; tarsus 1·3 ; bill from gape 1·10.

*Distribution*.—The sub-species found in Ceylon is confined to this Island. It is distinguished from the South Indian form, *T. griseus griseus* by the feathers of the head, which are of the same colour as those of the back. It is found all over the low-country, being most abundant in chena, scrub jungle, and cultivated tracts. In the hills it is more locally distributed, but appears to be increasing. It is rare, however, over 5,000 feet.

*Habits*.—One of our most familiar birds, generally known as the "Seven Sisters" from its custom of going about in little troops of from five to seven individuals. It is seldom met with far from cultivation. The general habits are described in my remarks on the Sub-family. The eggs may be found almost all the year round, but it breeds chiefly during the north-east monsoon. The nest is a fairly compact cup made of coarse grass and plant stalks and lined with finer grass. It is usually placed in the fork of a shrub from 4 to 6 feet from the ground, but I

have found it in the branches of trees as high as 20 feet up. There are usually three, rarely four eggs. The usual shape is a dumpy oval, slightly pointed at the smaller end. The texture is smooth and glossy, the colour greenish blue. Average size .95 by .72.

## 7. *TURDOIDES RUFESCENS*

### *The Ceylon Rufous Babbler*

*Ratu demalichchā*, Sinhalese; *vēlai-kāra-kuruvi*, Tamil.

*Malacocercus rufescens* Blyth. J. A. S. B. xvi. p. 453, (1847) (Ceylon); Legge p. 497; *Crateropus rufescens*, Oates & Blan. Vol. I. p. 114.

*Description*.—Upper plumage, wings, and tail rufous brown, the head slightly grayer, the outer margins of the feathers slightly paler and tinged with olive; the tail indistinctly cross rayed; the lower plumage ferruginous brown, the colour deepening a little on the flanks, vent, and under tail coverts. A specimen from Pundaluoya in the hills of the Central Province is distinctly grayer on the head, and more dusky elsewhere than those from Sabaragamuwa and the Western Province.

Bill orange yellow; iris white, at times tinged with green, or yellow; eyelid and orbital skin greenish yellow; legs and feet dull chrome yellow.

Dimensions a little variable: length about 10; wing, 4.1; tail 4.5; tarsus 1.3; bill from gape 1.

*Distribution*.—Peculiar to Ceylon, and restricted to the interior of the Island in the districts with a heavy rainfall, i.e., the west and south-west sides of the main hill ranges, and the country at the foot of these hills. Within these limits it is found at all elevations.

*Habits*.—Unlike the last species this is a jungle bird, found in thickets, bamboo scrub, and deep forest. It goes about in fairly large troops of about a dozen, and behaves in much the same manner as the more familiar "Seven Sisters." The breeding season appears to last from March to May. The nest resembles that of the preceeding species. It is placed among creepers surrounding tree trunks, or in a low fork, and is very carefully concealed. According to Legge, the eggs are pointed ovals in shape, deep greenish blue in colour, and measure about .95 by .75.

## 8. *TURDOIDES CINEREIFRONS*

### *The Ashy-headed Babbler*

*Alu-demalichchā*, Sinhalese; *vēlai-kāra-kuruvi*, Tamil.

*Garrulax cinereifrons* Blyth. J. A. S. B. xx. p. 176. (1851) (Ceylon); Legge p. 499; *Crateropus cinereifrons*, Oates & Blan. Vol. I. p. 114.

*Description*.—Forehead, crown, and sides of head ashy gray with a bluish tinge in some lights, shading on the nape into the deep rufous

brown of the upper plumage, wings, and tail; the outer webs of the first few primaries are slightly paler, and the tail rather deeper in colour; chin whitish, shading into the tawny rufous brown of the rest of the lower parts; flanks and under tail coverts rather darker.

Bill black; iris white; eyelids lead colour; legs and feet plumbeous brown.

Length 10; wing 4.5; tail 4.25; tarsus 1.5; bill from gape 1.2.

This bird is not a typical *Turdoides* and its generic status is uncertain. In general its plumage resembles that of a *Garrulax*, but the feathers of the forehead are short and rounded, as in *Turdoides*. The eggs are not known with certainty, and their authentication may clear up the situation.

*Distribution*.—Confined to the heavy jungles in the districts west and south-west of the Adam's Peak range, which it ascends to a height of about 3,500 feet. It does not occur outside Ceylon.

*Habits*.—Found in small troops in the heart of the jungle. It is said to breed about April, but nothing is definitely known regarding its nidification. Legge was informed by natives that the eggs were blue, but they may possibly be white. Further information on this point is badly required.

## 9. POMATORHINUS HORSFIELDI MELANURUS

### The Ceylon Scimitar-Babbler

*Parandel-kurullā*, Sinhalese.

*Pomatorhinus melanurus* Blyth. J. A. S. B. xvi. p. 451. (1847) (Ceylon); Legge p. 501; Oates & Blan. Vol. I. p. 118.

*Description*.—A band from the nostrils through the eye to the ear coverts, black, bordered above by a broad, white streak over the eye to the nape; crown and nape dark olivaceous brown; upper plumage, the sides of the neck and body, the thighs, vent, and under tail coverts rufous brown to olive brown, the tint varying in individual specimens; tail ferruginous near the base, darkening to almost black at the tip; lower parts from chin to abdomen white. In many birds the sides of the head and chest are streaked with white; in others the line of demarcation between the white lower plumage and the back is more abrupt.

Bill gamboge yellow, blackish adjoining the nostrils; iris reddish brown to dull red; eyelid and orbital skin blue; legs greenish lead colour, feet with a blue tinge. In young birds the bill is less curved than in adults.

Length 8.5; wing 3.5; tail 3.5; tarsus 1.2; bill from gape 1.2.

*Distribution.*—The Southern Scimitar Babbler is found over a large portion of Peninsular India, and is divided into four sub-species, of which the present form is found only in Ceylon. Col. Harrington is of opinion that our Ceylon form should again be divided into two races, as birds from the dry zone and the hills are, as a rule, more olivaceous than those from the low-country zone. However, as Legge points out, the variation is to a certain extent individual, and, until a large series from all localities is available for examination, I hesitate to make any sub-specific distinction. This Babbler is found all over the hills and in most of the well-wooded portions of the low-country. It is rare, however, in the drier forest districts.

*Habits.*—A shy woodland species, which keeps close to cover, and ventures near habitations only when the thickets admit. In the hills it is especially fond of the strips of jungle bordering streams. It occurs usually in pairs, but sometimes in small troops. Its presence is most frequently made known by its deep melodious call, which Legge represents by the syllables "wok-wok-ek-ek-wok," answered by a shorter call from the female. In the hills the breeding season appears to be from December to February. In the Puttalam District I have taken the eggs in March. The nest is rather a loose, more or less domed structure of leaves, grass, &c., placed in a bank, or against the foot of a hush. Three to five white eggs are laid. The shell is thin and smooth, but not very glossy. Average size .95 by .70.

## 10. DUMETIA ALBIGULARIS ALBIGULARIS

### The Small White-throated Babbler

*Parandel-kurullā, battichchā, Sinhalese.*

*Malacocercus albigularis* Blyth. J. A. S. B. xvi. p. 453. (1847) (S. India, Mysore); *Dumetia albigularis*, Legge p. 505; Oates & Blan. Vol. I. p. 134.

*Description.*—Lores and feathers round the eye whitish; upper plumage, wings, and tail olive brown; forehead and front of crown rufous with stiff shining shafts; hind-neck slightly paler than the back; tail faintly cross-rayed; the chin, throat, and centre of breast white; remainder of lower parts rust coloured, brighter in the breeding season.

Bill pinkish horn colour; iris white, or greenish; legs and feet reddish flesh coloured.

Length 5.6; wing 2.2; tail 2.25; tarsus .75; bill from gape .6.

*Distribution.*—Occurs over the greater part of the low-country and on the patanas of the hill country up to about 5,500 or 6,000 feet.

The same sub-species occurs in Southern India, and another sub-species round Mt. Abu.

*Habits*.—Frequents bushy patanas, the long grass, and undergrowth at the edges of paddy fields, roads and jungle paths, also waste land and low scrub. It roams about in little troops and keeps to cover as much as possible. The breeding season extends from November to June. The nest is a ball of grass with the opening at one side. It is placed within a few inches of the ground in rough grass, or a low bush. The three or four eggs are dumpy ovals of china white, thickly speckled and spotted with dull red; the markings are sometimes confluent at the larger end. Average size  $\cdot 71$  by  $\cdot 54$ .

# 11. PYCTORHIS SINENSIS NASALIS

## The Ceylon Yellow-eyed Babbler

*Hambu-kurullā, battichchā*, Sinhalese.

*Pyctorhis nasalis* Legge A. M. N. H. (5). iii. p. 169. (1879) (Ceylon); Birds of Ceylon p. 512; Oates & Blan. Vol. I. p. 138.

*Description*.—Upper plumage rufescent earth brown, slightly darker on the head; the tertiaries and the outer webs of the other wing quills slightly more rufous; tail feathers grayish brown, with slightly paler edges; lores, eyebrows, and the whole of the lower plumage white, tinged on the flanks and from the breast downwards with buff.

Bill and nostrils black; iris golden yellow, eyelid chrome yellow; legs and feet dull yellow.

Length about 6.5; wing 2.6; tail 3.25; tarsus 1; bill from gape  $\cdot 65$ . The dimensions are a little variable.

*Distribution*.—This sub-species is found only in Ceylon, but an allied form is found almost throughout the Indian Empire and extends into Siam. It is locally, but fairly widely distributed up to about 6,000 feet, but its chief haunts are the south-east of the Island, from the Uva patanas to the sea.

*Habits*.—May be looked for in fern lands, stretches of mana grass, low jungle, lantana scrub, and thick undergrowth. It keeps to cover during the day, but in the evenings is fond of perching at the top of a bush, giving out its call, which Legge describes as a plaintive whistle of two notes varied with a peculiar mewing call. The breeding season extends from February to May. The nest is a deep cup of grass and cobwebs, lined inside with fine grass and roots, and placed in the fork of a shrub, or in a tuft of mana grass. The three or four eggs are of fleshy white, spotted, mainly at the larger end, with brownish sienna, occasionally overlaid with brick red. Average size  $\cdot 78$  by  $\cdot 58$ .

## 12. PELLORNEUM FUSCICAPILLUM

## The Brown-Capped Babbler (Pl. I. Fig. 2.)

*Parandel-kurullā, battīchchā*, Sinhalese.

*Dryocolaptes fuscicapillus* Blyth. J. A.S.B. xxiii. p. 815. (1849) (Ceylon); *Pellorneum fuscicapillum*, Legge p. 509; Oates & Blan. Vol. I. p. 143.

*Description*.—Forehead, crown, and nape deep chocolate, with brighter shafts; rest of upper parts, wings, and tail dark olive brown, the feathers of the upper back and wing coverts with paler shafts, the edges of the primary quills lighter rufous; the lores, sides of head and neck, and all the lower parts rusty rufous, the colour being deeper on the cheeks and ear coverts and paler on the chin and abdomen; in some specimens the sides of the neck and breast are faintly streaked.

Bill, upper mandible deep brown with pale margins, lower mandible flesh coloured; iris light to dark red; legs and feet brownish flesh colour.

Length 6.5; wing 2.6; tail 2.5; tarsus 1.1; bill from gape .8.

*Distribution*.—Peculiar to Ceylon. Fairly common in jungle undergrowth all over the wooded portions of the low-country and up to about 5,500 feet. Birds from the drier districts are paler than those from the wet zone. A pale specimen from Trincomalee has lately been distinguished as *P. f. dubauti*, but until more material is available I am not in favour of any sub-specific distinction.

*Habits*.—A shy skulking bird, keeping almost entirely to thick scrub, low jungle, or the undergrowth in forests. It is more often heard than seen. The note is a whistle, which may be described by the words "to meet you." This note is frequently heard in the jungle, as also is the breeding song of the cock, which reminds one of a small boy whistling up and down the scale. The birds generally go about in pairs, or small family groups, picking up beetles, &c., from the ground. The breeding season appears to be from November to March and again about September. The description of the nest, given by Legge, as a cup-shaped structure placed in a bush, is probably due to an error. Authentic nests have recently been found by myself and Mr. Tunnard of Rothschild, Pussellawa. My nest, from the North-Central Province, was domed, and very cleverly camouflaged in a litter of dry leaves on the ground in the forest. The opening was at one side, and the materials were very roughly put together. The lining consisted of a few broken up dead leaves, and the roof of a few more broad dry leaves. Mr. Tunnard's nest was equally cleverly hidden, but more carefully

lined with weed stalks and the stems of maiden-hair fern. The two or three eggs are broad ovals with rather a blunt narrow end. The ground colour is china white, thickly covered with grayish purple and reddish brown markings. Average size .85 by .64.

### 13. RHOPOCICHLA ATRICEPS NIGRIFRONS

#### The Black-fronted Babbler

*Parandel-kurullā, battichchā*, Sinhalese.

*Alicippe nigrifrons* Blyth. J. A. S. B. xviii p. 815. (1849) (Ceylon); Legge p. 507; *Rhopocichla nigrifrons*, Oates, & Blan. Vol. I. p 160.

*Description*.—Forehead, round the eye, and ear coverts dull black, the forehead feathers with glistening shafts; sides of neck, upper plumage, wings, and tail rufous brown, darkening on the crown into the black of the forehead; outer wing quills with paler edges; tail darker at the tip, and in some specimens faintly cross-rayed; throat, neck, breast, and abdomen white, the feathers, except on the chin, throat and lower cheeks, with black bases which give the plumage a sullied appearance; flank, vent, and under tail coverts rufous olive.

Birds vary a good deal in the tint of the upper plumage: specimens from the low wet zone being, as a rule, decidedly more rufous, those from the hills more olive brown, while birds from the northern forests are intermediate.

Bill dark brown on the tip, the margins of the upper mandible and the lower mandible flesh colour; iris whitish, or pale yellow; legs and feet fleshy lavender.

Length 5.1; wing 2.2; tail 1.8; tarsus .85; bill from gape .7.

*Distribution*.—The present sub-species is confined to Ceylon, but is widely distributed over the whole Island. Allied sub-species occur on the Nilgiris and in Travancore.

*Habits*.—Common everywhere in thickets and forest undergrowth, especially bamboo scrub. It is an active little bird, which flits about in small parties uttering a shrill little rattling note. It appears to breed intermittently from December to June. The nest, which is frequently met with in the jungle, looks almost like a chance wisp of dry grass, or bunch of dead leaves stuck in the fork of a sapling, or bush about 4 to 7 ft. from the ground. The inside is pocket-shaped and tilted, so that the opening lies, in some cases, almost horizontally. The two, or occasionally three eggs are smooth, paper white ovals scattered over with spots of brownish red and a few specks of bluish gray. Average size .75 by .55,

## Sub-family LIOTRICHINAE

*Bush and Green Bulbuls*

With this Sub-family, which includes three species found in Ceylon we come to a group of birds distinguished from the rest of the *Timaliidae* by the difference in plumage between the two sexes. Unlike the Babblers, they are strictly arboreal in their habits, frequenting leafy trees and living on fruit and insects. In all three Ceylon species the bill is slender, slightly curved, and notched at the tip; the rectal bristles are minute, the nostrils oval, the wing rounded, the tail short and square. In the genus *Aegithina* there are two moults in the year, and the males have a distinct breeding plumage; the bill is about two-thirds the length of the head, and the plumage of the rump is very soft and fluffy. In *Chloropsis* there is no distinct breeding plumage, and only one moult a year. The bill is longer and slightly more curved, the wings are rather longer, and the tarsus very short. The eggs of all our Ceylon species are streakily marked.

*Key to Ceylon Liotrichinae*

A.—Bill about same length as tarsus; lower plumage yellow; wings mainly black and white.

*Aegithina tiphia zeylonica* (Ceylon Iora).

B.—Bill considerably longer than tarsus; plumage mainly grass-green; a blue moustache stripe.

(1) Forehead orange.

*Chloropsis aurifrons davidsoni* (Malabar Chloropsis).

(2) Forehead greenish.

*C. jerdoni* (Jerdon's Chloropsis.)

## 14. AEGITHINA TIPHIA ZEYLONICA

## The Ceylon Iora

*Panu-kurullā*, Sinhalese; *sinna-māmpala-kururi*, Tamil.

*Motacilla zeylonica* Gmel. Syst. Nat. I. p. 964. (1788) (Ceylon); *Iora tiphia*, Legge p. 490; *Aegithina tiphia*, Oates & Blan. Vol. I. p. 230.

*Description*.—Male in breeding plumage: Forehead, crown, lores, nape, and mantle satin black; the remainder of the back and the rump black, more or less mixed with dark green; a tuft of concealed, downy white plumes on the scapulars; upper tail coverts and tail black; wing coverts black with a broad, white patch formed by the terminal half of the median coverts, the greater coverts more or less tipped with white; wing quills black, the primaries brownish at the tip, and some of the quills



with faint pale edges ; face, sides of neck, and all the lower parts rich yellow, which grows paler on the vent and under tail coverts. In the off season the upper plumage becomes largely green, the black persisting most on the head and nape ; the wings and tail remain black, but the white tips on the coverts are more pronounced ; the lower parts are less rich in hue.

Female : Upper plumage dull grass green ; forehead and upper tail coverts tinged with yellow ; scapulars darker, and tail dusky green ; lesser wing coverts dusky green, median coverts blackish with broad, white tips faintly edged with yellow ; in the greater coverts the white is confined to the outer webs and more conspicuously tinged with yellow ; primaries blackish with faint white edges on the outer webs and broader, white inner margins on the basal portions ; inner quills with broad, white margins which are tinged with yellow, especially on the outer webs ; lores, sides of head, and all the lower parts yellow, shading into green on the flanks.

Bill, upper mandible black with blue margins, lower mandible blue ; iris, in males gray, mottled with brown, in females olive gray ; legs and feet slate blue.

Length 5·4 ; wing 2·5 ; tail 1·9 tarsus ·75 ; bill from gape ·7.

*Distribution*.—The present sub-species occurs in Ceylon and Southern India, typical *A. tiphia* occurs over the rest of India, except in the north-west. This Bush Bulbul is common, and widely distributed over the whole of the low-country and up to about 2,500 feet.

*Habits*.—A familiar little bird which keeps to leafy trees, either in gardens and open scattered groves, or on the edge of the jungle, by roadsides, &c. It is generally seen in pairs actively flitting about among the leaves searching for insects. The male has a clear, gentle whistle of two notes, " wheee-too." The breeding season lasts intermittently from November to June. The nest is a beautiful little cup of fine grass and fibres, thickly coated with cobwebs and glued on to the top of a bough, or attached to a fork from 6 to 20 feet from the ground. I have never found more than two eggs. They are slightly pointed ovals of grayish white with rather large longitudinal streaks of bluish gray and light brown. Average size ·70 by ·53.

## 15. CHLOROPSIS AURIFRONS DAVIDSONI

### The Malabar Chloropsis

*Nī-kurullā, girā-kurullā, Sinhalese.*

*Chloropsis aurifrons davidsoni* Stuart Baker Bull. B.O.C., xli. p. 2. (1920) (Malabar) ; *Phyllornis malabaricus*, Legge p. 448 ; *Chloropsis malabarica*, Oates & Blan. Vol. I p. 235.

*Description*.—Male; Forehead orange yellow; lores, cheeks, chin, and throat black; a moustache streak of hyacinth blue; lesser wing coverts turquoise blue; remainder of plumage grass green, the inner webs of the wing quills dull brown.

In the female the throat patch and cheek stripe are smaller. Young birds are green all over.

Bill blackish; iris brown; legs and feet slaty blue.

Length 7·5; wing 3·5; tail 2·6; tarsus ·7; bill from gape ·95. Females are slightly smaller.

*Distribution*.—Not so common as Jerdon's Bulbul, but widely, though locally, distributed both in the hills and the low-country. It is indistinguishable in the open from the next species, unless one is near enough to make out the orange yellow forehead. The present sub-species is found in India on the Malabar Coast and as far north as Khandala; other sub-species are found in Assam, Eastern Bengal, Burma and Ceylon.

*Habits*.—Much the same as those of the next species, but it is apparently not such a good mimic. The nest has been taken in January in the Ratnapura district. It resembles that of the next species, but the eggs are rather different. There are generally two; the shape is a long oval; the ground colour is pale dull pink, freckled and lightly blotched with pale lavender, or more definitely speckled with reddish brown, or rusty red; size about ·82 by ·60.

## 16. CHLOROPSIS JERDONI

*Jerdon's Chloropsis* (Pl. I. Fig. 3.)

*Nū-kurullā, girā-kurullā*. Sinhalese.

*Phyllornis jerdoni* Blyth. J.A.S.B. xiii p. 392. (1844) (Madras); Legge p. 485; *Chloropsis jerdoni*. Oates & Blan. Vol. I. p. 238.

*Description*.—Lores cheeks, chin, and throat black; a hyacinth blue moustache stripe; forehead, above the eye, and all round the black gorget greenish yellow; lesser wing coverts turquoise blue; rest of plumage grass green, the lower parts slightly brighter.

In females the lores and gorget are bluish green and the cheek stripe greenish blue. The young are green all over.

Bill blackish; iris brown; legs and feet pale bluish.

Length 7·4; wing 3·4; tail 2·8; tarsus ·75; bill from gape ·95.

*Distribution*.—Found all over the low-country in well-wooded parts. It ascends the hills to 3,500 feet, or occasionally higher. It occurs over the greater portion of the peninsula of India.

*Habits.*—A common bird, which often escapes notice as the plumage so closely resembles the green of the foliage. It frequents trees in compounds and gardens, by the roadside and river banks, or round tanks and paddy fields. It is generally found singly or in pairs, but, when not breeding, the females collect in little troops. It is an active little bird, assiduously hunting among the leaves of trees, or fronds of palms for the insects on which it feeds. The male has a clear pleasant whistle, and mimics the calls of other birds with astonishing accuracy. It appears to have several broods, beginning in November or December, as soon as the rains have set in, while I have found eggs as late as May. The nest is hard to discover. It is a soft, neatly woven cup, composed of fine strips of grass, or tow-like fibre, suspended by the rim to the fork of a slender twig, and always well concealed by overhanging leaves. It is generally 6 to 10 feet from the ground, but occasionally much higher. The two eggs are slightly pointed, glossless, cream-coloured ovals, sparingly marked with short fine streaks, or spots of dark brown, at times almost black. Average size .82 by .59.

## Family PYCNONOTIDAE

### *Bulbuls*

I have followed Stuart Baker in restoring the Bulbuls to the rank of a Family. They are a well-known and large group of birds ranging throughout almost the whole of Africa, the South of Asia and the South-west corner of Europe. The chief points which distinguish them from the Babblers are the extreme shortness of the tarsus and the presence of some hairs which grow from the nape. In most of our Ceylon species, however, these hairs are short and sometimes hard to detect. Their habits are mainly arboreal; the sexes are alike; the young resemble the adults, but are duller and generally paler. The eggs of all species are marked with various shades of red and purple. The rectal bristles are fairly well developed; the nostrils lie in a groove at the base of the bill; the wings are rounded and moderate in length; the tail is also moderate and generally rounded. Six species belonging to five genera occur in Ceylon. One genus, *Kelaartia*, is peculiar to the Island, as is also one species of another genus. The main generic characters are given in the following key.

### *Key to Ceylon Pycnonotidae*

A.—A distinct bushy, black crest.

(a) Length about 9.75; wing rather pointed; outer tail feathers

curved outwards; bill coral red.

*Microscelis psaroides ganeesa* (Southern Indian Black Bulbul).

- (b) Length about 7·75; wing blunt; bill black; under tail coverts crimson.

*Molpastes haemorrhous haemorrhous* (Madras Red-vented Bulbul.)

B.—No distinct crest.

- (a) Bill about three-quarters length of head; upper mandible sharply keeled.

(1) Crown and upper plumage yellowish green.

*Iole icterica* (Yellow-browed Bulbul).

- (b) Bill about half length of head; upper mandible not so sharply ridged. Genus *Pycnonotus*.

(1) Crown and nape black; upper plumage olive green.

*P. melanicterus* (Black capped Bulbul).

(2) Crown and upper plumage ashy brown.

*P. luteolus* (White-browed Bulbul.)

C.—Crown feathers large and rounded; a bright yellow streak of longish pointed feathers over ear coverts.

*Kelaartia penicillata* (Yellow-eared Bulbul.)

## 17. MICROSCELIS PSAROIDES GANEESA

### The Southern Indian Black Bulbul

*Kalu kondayā*. Sinhalese; *karuppu-kondai-kuruvi*, Tamil.

*Hypsipetes ganeesa* Sykes, P.Z.S., 1823, p. 80 (Deccan); Legge p. 469 Oates & Blan, Vol. I p. 262.

*Description*.—Lores, forehead, crown, and nape glossy black, with a greenish lustre in freshly moulted specimens, the feathers longish; hind-neck, back, rump, and upper tail coverts dull bluish gray with darker shaft streaks; wings and tail dull brown, the wing coverts and inner wing quills edged with the blue gray of the back; cheeks, throat, chest, and under parts slaty gray, paler on the abdomen and darker on the cheeks and chin, which are tinged with ashy brown.

Bill coral red; iris orange, or reddish; legs and feet yellowish red.

Length 9·75; wing 4·7; tail 4·7; tarsus ·8; bill from gape 1·2.

*Distribution*.—Common in the well wooded parts of the low-country damp zone and on the hills, but rarely met with in the drier forest tracts. It appears to visit the highest elevations in the dry weather. The sub-species found in Ceylon is also met with on the Malabar hills. Allied sub-species occur on the Himalayas, in Assam, and parts of Burma.

*Habits*.—Out of the breeding season this Bulbul is generally found in noisy flocks, feeding on fruits and berries at the top of tall trees in forest and jungle. Its most frequent calls are described by Legge as resembling the sounds "tehee" and "zu kink up." The breeding season is from January to about April. The nest is a rather untidy cup of dead leaves, roots, and moss placed in a fork of a branch, generally at some height from the ground. There are usually only two eggs, of a whitish ground colour, thickly speckled with red and purplish gray. Average size 1·03 by ·72.

## 18 MOLPASTES HAEMORRHOUS HAEMORRHOUS

### The Madras Red-vented Bulbul

*Kondayā*. Sinhalese; *kondai-kuruvi*, Tamil.

*Muscicapa haemorrhous* Gmel. S.N. I. p. 941. (1789) (Ceylon); *Pycnonotus haemorrhous*, Legge p. 482; *Molpastes haemorrhous*, Oates & Blan. Vol I p. 268.

*Description*.—Head, chin, and throat deep black, inclining to brown on the ear coverts; there are generally one or two longish hairs on the nape; feathers of neck, back, wing coverts, scapulars, and breast brown with pale edges; rump plain brown; upper tail coverts white; wing quills brown with narrow paler edges; tail brown at the base, deepening to black at the end and tipped with white; flanks light brown; abdomen whitish; under tail coverts crimson. In some specimens the tail coverts and tip of the tail are pale cinnamon. Birds from the hills are paler than low-country specimens.

Bill black; iris deep brown; legs and feet dark brown.

Length 7·8; wing 3·75; tail 3·2; tarsus ·85; bill from page ·8.

*Distribution*.—Extremely common over the whole of the low-country and at medium elevations. It is only occasionally met with in the higher hills. This species is found in one form or another over most of India and Burma and extends to China. The present sub-species occurs in S. India and Ceylon.

*Habits*.—Familiar in gardens and near civilization over the whole of its usual range. It frequents bushes, low trees, hedges, &c. It is not nearly so common far from cultivation. The cry is a cheerful little chirruping warble. It breeds fairly steadily from November till May, or even later if the weather be favourable, rearing several broods. The nest is a small, rather coarsely woven cup of grass, lined almost invariably with fine, red, root fibres. On occasions the nest is made of fine, small-leaved tender shoots. It is generally placed in a bush, or hedge, but the birds occasionally build in verandahs, &c. There are usually three

eggs; they are in most cases rather dumpy and slightly pointed at the small end. The ground colour varies from china white to pinkish, thickly spread with blotchy specks of reddish brown and purplish. Average size .85 by .63.

## 19. IOLE ICTERICA

### The Yellow-browed Bulbul

*Gulu-guluwā*, Sinhalese.

*Criniger ictericus* Strick. A.M.N.H., xiii. p. 411 (1844) (Mahableshwar); Legge p. 472; *Iole icterica*, Oates & Blau. Vol. I. p. 283.

*Description*.—Upper surface yellowish green; inner webs of wing quills brown, the basal portions edged with yellow; tail feathers brighter towards the outer edges, the inner edges of all but the central feathers and the under surface of the shafts yellow; lores, base of nostrils, a narrow eyebrow, face, entire under surface, and wing-lining bright yellow.

Bill black; iris red, or light red; legs and feet bluish lead, or dusky slate colour.

Length about 8; wing 3.5; tail 3.2; tarsus .72; bill from gape .82. Females are slightly smaller.

*Distribution*.—Restricted to forest and high jungle throughout the low-country and up to about 4,000 feet, or even higher. In India it is found on the west coast as far north as Mahableshwar.

*Habits*.—Essentially a jungle bird. In the low-country it keeps to the large forests; at medium elevations it occurs in nearly every patch of jungle. It generally wanders about in little parties, which hunt actively among the boughs and in the top of the undergrowth for the insects on which they chiefly feed. The call is a soft, low, mellow whistle. The breeding season is probably during the first half of the year, but eggs may be found as late as August. The nest is generally suspended by the rim to a fork in the top of a thin sapling. It is composed of small twigs and grass and is lined with fine grass. The two eggs are longish ovals; the ground colour is dull white, or pinkish, thickly speckled with pale brownish red, or pink markings. Average size (of Indian eggs) .96 by .67.

## 20. PYCNONOTUS MELANICTERUS

### The Black-capped Bulbul (Pl. II. Fig. I.)

*Kaha-kondayā*, Sinhalese,.

*Muscicapa melanictera* Gmel. S.N. I.p. 941. (1789) (Ceylon); *Rubigula melanictera*, Legge p. 477; *Pycnonotus melanicterus*, Oates and Blau. Vol. I. p. 282.

*Description.* Forehead, crown, nape, and sides of head black; upper plumage and wing coverts olive green; wing quills brown, the outer webs olive green; tail feathers dark brown, the basal portions washed with the hue of the back; there is a broad, white patch on the tips of the outer feathers, this patch decreases on the inner feathers, the central pair being unmarked; lower plumage bright yellow, the sides of the breast and body washed with olive; wing-lining and edge of wing yellow.

Bill black; iris dull red in males, dark brown in females; legs and feet blackish in males, blackish blue, or deep lead colour in females.

Length 6·5; wing 2·8; tail 2·6; tarsus ·6; bill from gape ·78. Females are slightly smaller.

*Distribution.*—Peculiar to Ceylon. It occurs throughout the whole of the low-country, except in the most arid parts, and on the hills up to about 5,000 feet.

*Habits.*—Fairly common in forest, low jungle, clumps of thicket, shady ravines, &c. It may be met with either in pairs, or small troops, and often consorts with the forest Bulbul, or White-browed Bulbul. The note is a little "whee whee, whee, whee." The breeding season is probably from March to July, occasionally later. The nest, of the usual Bulbul type, is placed in the fork of a low tree, or bush, or even on a dead stump. Two or three eggs are laid. The ground colour is reddish white, thickly marked with reddish brown and a little bluish gray. Average size ·79 by ·58.

## 21. PYCNONOTUS LUTEOLUS

### The White-browed Bulbul

*Gulu-guluwā*, Sinhalese.

*Haematornis luteolus* Less. Rev. Zool. 1840. p. 354. (India, Bombay); *Izos luteolus*, Legge p. 475; *Pycnonotus luteolus*, Oates & Blan. Vol I. p. 290.

*Description.*—Upper plumage ashy brown, the edges of the feathers, except on the crown, washed faintly with green; rump and upper tail coverts slightly paler; wings and tail brown, washed with greenish on the outer webs; a broad streak from the nostril over the eye and an indistinct ring round the eye whitish; lores streaky white and black; ear coverts brownish; the point of the chin and a stripe along the lower jaw yellowish; under parts dingy white, washed with brown on the chest and flecked with pale dingy yellow; vent and under tail coverts, wing-lining, and edge of wing pale yellow.

Bill black; iris rusty red to blood red; legs and feet dusky lead colour.

Length 7·4 ; wing 3·2 ; tail 3·1 tarsus ·87 ; bill from gape ·85.

*Distribution*.—Very common all over the low-country and in the hills to 3,000 feet, or even higher. In India it is found over a great part of the peninsula proper.

*Habits*.—Very much the same as those of the Madras Bulbul, but it is not nearly so partial to cultivation, being especially common in bushy scrub, lantana, chenab, low jungle, and the undergrowth in dry forests. It feeds partly on insects, but is very fond of small berries, such as those of the lantana. It is rather a shy bird, evading observation as much as possible. It breeds from February to June. The nest is scarcely distinguishable from that of the Madras Bulbul, and like it is generally placed in a low bush. There are, however, seldom more than two eggs. Typically they are longer and narrower than those of the Madras Bulbul, but light specimens are often hard to distinguish. In more heavily marked eggs the markings are less claret coloured and more of a light reddish brown, while the tint of the ground colour, though pale, differs correspondingly. Average size ·91 by ·62.

## 22. KELAARTIA PENICILLATA

### The Yellow-eared Bulbul

*Gulu-guluwā*. Sinhalese.

*Pycnonotus penicillatus* Blyth. J.A.S.B. xx. p. 178. (1851) (Ceylon); *Kelaartia penicillata* Legge p. 480; Oates & Blan. Vol. I. p. 297.

*Description*.—A narrow white line from the nostril to the upper part of the eye; forehead and crown dull black, the feathers broad and loose, giving a scaly effect; a broad yellow streak from the top of the eye to the nape; a spot on the upper eyelid and the chin white; lores and cheeks black; ear coverts black with a yellow spot, behind which the colour changes into a gray patch; upper plumage olive green; wings and tail dark brown, washed with olive green on the outer webs; lower plumage from throat to tail coverts yellow, washed with olive on the breast and flanks; wing-lining and edge of wing yellow.

Bill black; iris red, mingled with brown, or deepening to brown next the pupil; legs and feet dark lead blue.

Length 7·75 ; wing 3·25 ; tail 3·2 tarsus ·78 ; bill from gape ·85. Females are rather smaller.

*Distribution*.—Confined to Ceylon and restricted to the hills, being seldom found much below 3,500 feet.

*Habits*.—Abundant in the higher ranges where it frequents forests, patanas, woods, and the outskirts of cultivation. It keeps generally to the lower trees and undergrowth, and appears to live mainly on fruit.



The call is a small plaintive whistle "whee, whee, whee," quickly repeated. The breeding season appears to be about April. The nest is a fairly neat cup of moss, grass, and fine roots and leaves. There appear to be only two eggs, of a pale pinkish ground colour, with rather blurred blotches and streaks of pinkish brown. Average size .93 by .65.

### Family TURDIDAE

#### *The Thrush Family*

The *Turdidae* as defined by Oates are a large Passerine group, in which the young are normally either mottled, or marked with a scaly pattern. Herein they agree with the Flycatchers; they differ, however, in having longer and more serviceable tarsi, and in lacking the horizontal hairs, which in the Flycatchers spring from the forehead and overlie the nostrils. I have followed E.C. Stuart Baker's classification by including in the Family the *Brachypteryginae*—a Sub-family transferred from the place given them by Oates in his *Crateropodidae*—and also by including the genus *Arrenga* in the sub-family *Turdidae*, or true Thrushes.

The Family includes four Sub-families represented in Ceylon: the Chats—*Saxicolinae*; the Redstarts and Robins—*Phoenicurinae*; the Shortwings and Blue Chats—*Brachypteryginae*; and the Thrushes—*Turdinae*. The above Sub-families comprise a variety of forms, but the following points are held in common, besides those mentioned above; the edges of both mandibles are smooth, or the upper mandible is simply notched; the wing has ten primaries; the nostrils are clear of the line of the forehead; there is an autumn moult, frequently supplemented by a partial change in spring, caused by the shedding of the margins of the feathers; there are usually twelve, very seldom fourteen tail feathers. Many of the species are migratory.

The four Sub-families may be divided thus:—

*Saxicolinae*.—Habits like those of the Flycatchers, but more terrestrial. The insect food is captured by short sallies from a perch.

*Phoenicurinae*.—Insectivorous; largely terrestrial.

*Brachypteryginae*.—Insectivorous; habits terrestrial and skulking.

*Turdinae*.—Both terrestrial and arboreal ; larger in size than birds of the other Sub-families and more gregarious ; food partly of insects, partly of berries, &c.

### Sub-family SAXICOLINAE

#### *Chats*

The Chats show certain resemblances to the Flycatchers, and have the same habit of making short sallies, in search of insects, from a fixed perch, to which they return. Their prey, however, is generally captured on the ground and not on the wing. They have also a very characteristic manner of raising and depressing their tails and darting out their wings when on their perch. They are most strongly represented in Africa, but are also widely distributed in Europe, Central Asia, and India.

In the genus *Saxicola* the bill is fairly wide at the base and moderately curved ; the rectal bristles are well developed ; the wing is moderate in length and somewhat rounded ; the tail is slightly rounded and shorter than the wing ; the tarsus is smooth and moderate in length. The sexes are dissimilar. Only one species is found in Ceylon. The male is black and white, and may be distinguished from the little Black Robin by its white tail coverts.

### 23. SAXICOLA CAPRATA ATRATA

#### The Southern Indian Pied Bush-Chat

Vernacular names not recorded.

*Pratincola atrata* Kelaart, Blyth, J.A.S.B. xx. p. 177. (1851) (Ceylon); *P. bicolor*, Legge p. 430 ; *P. atrata*, Oates & Blan. Vol. II. p. 60.

*Description*.—Male: In the breeding season the whole plumage black, except for the tips of the rump feathers, the tail coverts both upper and lower, and a broad band on the wing-coverts, all of which are clear white ; as the season wears on the black feathers become more or less fringed with rufous brown.

Female: The feathers of the upper plumage, including the wings, dusky brown with lighter edges, the wing coverts with broader, light margins ; rump and upper tail coverts pale rufous ; tail almost black ; chin and throat slightly streaky grayish brown ; breast, sides, and upper abdomen dull pale brown with dark streaks ; lower abdomen unstreaked ; under tail coverts pale rufous

Young birds are fulvous brown mottled all over with dusky brown ; lower breast and abdomen pale fulvous ; in males the white wing patch is assumed at a very early stage.

Bill, legs, and feet black ; iris brown.

Length about 6 ; wing 3 ; tail 2·3 ; tarsus ·9 ; bill from gape ·75.

*Distribution*.—The Pied Bush Chat is found almost throughout the Indian Empire, and ranges from Persia to Java and the Philippines. The present sub-species occurs in South India and Ceylon, and unlike most southern forms, is distinguished by its larger size and more massive bill. In Ceylon it is confined to elevations of over about 3,500 feet, and is almost entirely restricted to the Horton Plains, the Nuwara Eliya plateau, Uda Pussellawa, and the Uva hill basin.

*Habits*.—Fairly common in and round Nuwara Eliya and on the patanas and bare, or rocky hillsides within its range. It usually occurs in pairs, and is not at all shy. The main habits are described in my remarks on the Sub-family. The male has quite a pretty little warble. The breeding season is from April to June. The nest is a saucer-shaped pad of grass, roots, and fibres placed in a grassy ledge, or a hole in a bank. There are probably three to four eggs of bluish green with brownish red markings. Average size (of South Indian eggs) ·77 by ·6.

#### Sub-Family PHOENICURINAE

##### *Bluethroats and Robins*

The *Phoenicurinae* connect the Chats with the true Thrushes. They are found mainly in Europe and Asia. Many of them are migratory, but only one migrant species penetrates as far south as Ceylon, and that merely as a rare straggler. Our three resident forms, however, are familiar birds. The members of this Sub-family are mainly terrestrial ; the tarsi are long ; the feet are well adapted for running, and the insects on which they feed are picked up from the ground. Like the Chats, they have the habit of frequently cocking the tail and drooping the wings. In one genus—*Saxicoloides*—the tarsus is scutellated in front ; in the rest it is smooth. In all Ceylon species the rectal bristles are weak and the bill fairly slender ; the wing is moderate in length and rounded, being somewhat sharper in *Cyanosylvia* than in the other genera ; the tail varies greatly in length and shape. The sexes are dissimilar.

*Key to Ceylon Phoenicurinae*

A.—No white on the tail, which is shorter than the wing.

- (1) Length about 6; upper plumage mainly brown; tail brown and chestnut

*Cyanosylvia suecica pallidogularis* (Red-spotted Blue throat).

- (2) Length about 6·3; upper plumage black in males, dusky brown in females; tail black, lower tail coverts chestnut.

*Saricoloides fulicata fulicata* (Black-backed Indian Robin).

B.—Tail black and white.

- (1) Length about 8; tail about 3·5; upper tail coverts black.

*Copysychus saularis ceylonensis* (Ceylon Magpie Robin).

- (2) Length about 11; tail about 6; rump and upper tail coverts white.

*Kiticocincla macroura indica* (Indian Shama).

## 24. CYANOSYLVA SUECICA PALLIDOGULARIS

### The Red-spotted Bluethroat

Vernacular names not recorded.

*Cyanecula suecica pallidogularis* Sarudny, Mat. z. Kennnt. d. Fauna & F. d. Russ. Reichs pp. 171 & 312. (1897) (Orenburg); *Cyrnecula suecica*. Lodge p. 443; Oates & Blan. Vol. II. p. 99.

*Description*.—Male: Upper plumage, including wings, brown, the feathers of the head and neck with darker centres; chin and throat blue, with a rusty red patch in the centre of the throat, the blue area is bordered below by a band of black and this band by another broader, rufous band; lores black; a buff stripe from the nostrils over the eye to the ear coverts; cheeks and ear coverts buff mixed with black; remainder of lower parts dull white; central tail feathers brown, the others with the basal half chestnut and the end half blackish brown.

Females: Whole of lower parts buffish white; a broad, blackish gorget, with brown spots, across the breast. Immature males resemble females, only gradually assuming the blue and chestnut of full maturity, and birds are seldom met with in the full male plumage. In nestlings the upper parts are blackish streaked with buff, the feathers of the lower

Bill black, the base flesh colour ; iris brown ; legs dusky flesh colour. Length 5.9 ; wing 2.9 ; tail 2.3 ; tarsus 1.1 ; bill from gape .75.

*Distribution*.—This species, of which there are several races, is found in summer in the far north from Western Europe to the Pacific Coast of Asia. The present sub-species breeds from the Southern Urals to Turkestan. In winter it is found practically all over India. With us it is an extremely rare north-east monsoon visitor. A few specimens were procured by Layard at Ambagamuwa, and Legge believes that he once saw it in the North-Western Province.

*Habits*.—May be looked for in gardens and open country.

## 25. SAXICOLOIDES FULICATA FULICATA

### The Black-backed Indian Robin

*Kalu-polkichchā*. Sinhalese; *kāri-kuruvi*, *vannāti-kuruvi*, Tamil.

*Motacilla fulicata* Linn Syst. Nat. I p. 336. (1766) (Philippines) (Ceylon)

*Thamnobia fulicata*, Legge p 440 ; Oates & Blan. Vol II. p 115.

*Description*.—Male : Whole body plumage glossy blue black, except the lower abdomen and lower tail coverts, which are chestnut ; wings and tail a less glossy black ; a white patch on the lesser and median wing coverts ; towards the moulting season the plumage loses some of its gloss and hue.

Female : Feathers of upper plumage dusky brown with slightly brighter brown edges, most noticeable on the wing coverts ; wing quills rather paler brown ; upper tail coverts and tail black ; lower parts dusky brown with a slightly grayish tinge, the tips of the abdominal feathers and the lower tail coverts dull chestnut.

Young : Blackish brown above ; the wing coverts and quills with broad rufous edges ; upper tail coverts and tail blackish ; feathers of head and fore-neck tipped with rufescent gray ; lower parts dark brown mottled with rufous ; centre of abdomen and under tail coverts pale chestnut.

Bill, legs, and feet black ; iris brown.

Length 6.3 ; wing 2.85 ; tail 2.5 ; tarsus 1 ; bill from gape .7.

*Distribution*.—Abundant all over the low country, more especially in the drier districts. It ascends the hills up to about 4,000 feet. It also occurs in the southern half of the Indian Peninsula.

*Habits* —A very familiar bird, whether in town gardens, near villages, in chenas and low scrub jungle, or round tanks, and fields. It is as active and perky in all its movements and as fearless of man as its namesake, the English Robin. The note is a cheerful little chirp. The breeding season begins in March and lasts right on through the dry weather to September. The nest is a little, loose structure of moss,

hair, roots, or grass, placed in all sorts of cavities, from a hole in a bank, or an empty coconut shell lying on the ground, to any available niche in an outhouse, or verandah. There are generally only two eggs, at times three. They vary a good deal, the ground colour ranging from dull white to greenish, or brownish white, thickly spotted with reddish brown and at times dull purplish gray. Average size of a large Ceylon series .79 by .59.

## 26. *COPSYCHUS SAULARIS CEYLONENSIS*

### The Ceylon Magpie Robin

*Polkicchā*, Sinhalese; *kāri-kuruvi*, *pāt-kāri-kuruvi*, Tamil.

*C. ceylonensis* Selater P.Z.S. 1861 (Ceylon); *C. saularis*, Legge, p. 433. Oates & Blan. Vol. II. p 116.

*Description*.—Male; Head, neck, breast, and upper plumage glossy blue black; abdomen, sides of the body, and lower tail coverts white; wing coverts and quills black with a large white area formed by the lesser and median coverts, the outer webs of the innermost coverts, and of the two innermost secondaries; the two central pairs, of tail feathers black, the three outer pairs white, the remaining pairs white, except for a black border on the inner web and, at times, a thin, black edge on the outer web as well; wing-lining white.

Females: The black of the wings, tail and upper parts is rather rusty; the body feathers glossed with blue; chin, throat, and sides of neck dark gray; the white of the under parts not quite so clear as in the male; forehead, lores, and cheeks slightly mottled with gray.

In young birds the dark parts of the upper plumage are distinctly brown; the wing quills have rufous edges; the lesser coverts are more or less mottled with rufous; the throat and breast grayish brown mottled with rufous.

Bill black; eyelids lead colour; iris hazel brown; legs and feet dark lead colour.

Length about 8; wing 3.8; tail 3.5; tarsus 1.15; bill from gape 1; females are slightly smaller.

*Distribution*.—This species is found almost throughout the Indian Empire. The form which occurs in Ceylon is also found in Travancore and is given sub-specific rank. It is common over the whole of the Island up to about 5,500 feet, except in the heart of the damp forests.

*Habits*.—As familiar and tame a bird as the last species. It is equally abundant in town gardens, village compounds, cultivated lands, scrub-jungle, and open forest. It feeds on the ground on insects, and is active on its feet. It has the habit of cocking up its tail perpendicularly at the end of its run. The song is varied and full, and, especially during

the breeding season, is poured out for long periods in the early morning and late evening. The breeding season is generally from March to August, but at times in the early part of the north-east monsoon. The nest is rather a rough structure of grass, root fibres, &c., placed in the hole of a tree, in any niche of a wall, or among the cadjans in the roof of an outhouse or watch hut. There are usually three eggs, very seldom four. They are rather dumpy and slightly pointed. The ground is pale bluish green, or light green, thickly sprinkled with various shades of sepia brown and occasionally bluish gray. The markings tend to coalesce at the larger end, but vary considerably in distribution. Average size .92 by .69.

## 27. KITTOCINCLA MACROURA INDICA

The Indian Shama (Pl. II. Fig. 2.)

*Wal-polkichchā*, Sinhalese.

*Kittocincla macroura indica* Stuart Baker, Bull. B.O.C., 1921. (India); *Cittocincla macrura*, Legge, p. 437; Oates & Blan. Vol. II. p. 118.

*Description*.—Male: Whole head and neck, back, wing coverts, and chest glossy blue black; rump and upper tail coverts white; wing quills and primary coverts rusty black; four central tail feathers entirely black, the rest black at the base, white at the end; abdomen, vent, and under tail coverts chestnut; thighs white above, black lower down. In females the black parts are more slaty brown, and the chestnut of the lower parts pale rufous; quills and wing coverts with narrow, rufous edges.

Young birds vary; in most the upper plumage is dark brown with some light chestnut spots; the quills are edged with rufous; the lower parts rusty red, mottled with brown on the throat and breast.

Bill black; iris brown; legs pale flesh colour.

Length about 11; wing 3.7; tail about 6; tarsus 1.1; bill from gape .95.

*Distribution*.—Found throughout the greater part of the low-country forests, but less common in the west and south-west. It ascends the hills to about 3,500 feet. It occurs in Central and Southern India, the sub-Himalayan region from the Ganges eastward and in Assam and Burma.

*Habits*.—A shy bird, which spends most of its time in forest undergrowth and bamboo scrub. It feeds on insects, and is generally found in pairs. It is our finest songster; the notes are lower and richer than those of the Magpie Robin. I have found eggs from February till June. The nest is made of dry leaves, grass, and twigs, and is placed in the hole of a tree, or dead stump in the forest. The eggs are, as a rule, slightly

smaller and more elongated at the narrow end than those of the Magpie Robin. The ground colour is pale grayish white, at times with a slight green tinge, thickly and rather streakily freckled all over with umber grown. At times the markings are more pronounced at the larger end. Average size .89 by 64.

### Sub-family BRACHYPTERYGINAE

#### *Blue Chats*

In the classification adopted by Oates, the *Brachypteryginae* formed a Sub-family of his *Crateropodidae*, and, as he remarks, connect them with the *Turdidae*. I have, however, followed Stuart Baker, in transferring the Ceylon species *Arrenga blighi* from the Sub-family to the *Turdinae*, and the Sub-family itself, which now contains only one migratory Ceylon species, to its present position in the *Turdidae*. The nestlings are somewhat mottled, or squamated. The Blue Chat in its general coloration is not unlike the Blue Flycatchers of the genus *Cyornis*. It is, however, strictly terrestrial in its habits, skulking in the undergrowth, and, as might be expected in a ground bird, has a long tarsus; whereas the Flycatchers have a weak, short tarsus.

The bill is short and slender; the nostrils are thin ovals, and not overhung with hairs; the rectal bristles are scanty; the wing is moderate in length and somewhat pointed; the tail is short; the feet are delicate, the middle toe is much the longest. The sexes are dissimilar.

### 28. LARVIVORA BRUNNEA

#### The Himalayan Blue Chat

Vernacular names not recorded.

*Larvivora brunnea* Hodg. J.A.S.B. vi. p. 102. (1837) (Nepal); Legge p. 446; Oates & Blan Vol. I. p. 182.

*Description*.—Male: Upper plumage, wing coverts, and tail dull blue; lores, cheeks, ear coverts, and a band down the sides of the neck dull black; a white line over the eye to the nape; wings dusky brown, the outer webs bluish; in some specimens the point of the chin and a narrow line on the cheeks white; throat, breast, and sides of body bright chestnut, paling into white on the abdomen, vent, and lower tail coverts.

Female: Head, upper plumage, and lesser wing coverts dark olive brown, tinged with russet on the tail coverts; greater wing coverts and quills brown, tinged with russet on the outer webs, the coverts also with



rufous tips ; tail brown washed with russet ; forehead, lores, and sides of head rufous with brown mottlings ; centre of chin and throat, abdomen, and under tail coverts pure white ; sides of chin and throat, and the breast rusty fulvous, each feather with a brown margin ; sides of body unmarked fulvous.

Young birds resemble the adult female. Nestlings are mottled.

Bill black above, paler beneath ; iris dark brown ; legs and feet flesh colour.

Length 5·5 ; wing 3 ; tail 2 ; tarsus 1·05 ; bill from gape 72.

*Distribution*.—This Chat is with us a north-east monsoon migrant. The flight is weak, and it appears to cross by the shortest sea-route from South India to the north of the Island in October, or at times earlier. It then makes its way to the central hills. Many of our visitors are yearling birds. The species occurs over the greater part of India, breeding on the Himalayas and visiting the plains in winter.

*Habits*.—A skulking bird, which keeps almost entirely to the undergrowth in forest, appearing for short periods at the edge of the jungle, or by the side of jungle paths, and searching actively on the ground for the insects on which it feeds.

## Sub-Family TURDINAE

### *Thrushes*

The true Thrushes are larger birds and, as a rule, more gregarious than the other Sub-families of the *Turdidae*. Their food is not wholly insectivorous, and berries form a considerable part of their diet. The seven forms found in Ceylon are all of fairly stout build and of medium size, from 8 to 10½ inches in length. None of them are very familiar, as they are all local in their distribution ; most of them are rare, and all, save one or two, are met with only in the hills. Four forms are peculiar to this Island, while the others are rare migrants. The first six species on the list are structurally much alike, and there has been considerable diversity of opinion in dividing them into genera. The wing is moderate, and generally somewhat pointed ; the tail is never of great length, and in *Geocichla* and *Oreocincla* is distinctly short ; the rectal bristles are feeble ; the tarsus is moderately long, stout and serviceable. The birds spend a good deal of their time on the ground. There is one moult a year, in the autumn, but in many species there is a partial change of plumage in spring, due to the dropping off of the margins

of the feathers. In the young the lower plumage is more or less barred, or spotted, and in some species this characteristic is maintained in the adults. As regards the last species, *Arrenga blighi*, I have followed Stuart Baker in transferring it from the *Timaliidae* to the *Turdinae*, although the young are no longer spotted. It is Thrushlike in its general build and appearance, but the wing is more blunt than in the rest of the Sub-family. The nest and eggs also, are Thrush-like

*Key to Ceylon Turdinae*

- A.—Only a slight difference between the sexes; plumage almost uniform blackish; under tail coverts same colour as lower parts.

*Turdus merula kinnisii* (Ceylon Blackbird).

- B.—Sexes unlike; plumage more or less pied; under tail coverts unmixed white. Genus *Geocichla*.

- (1) No chestnut in plumage; some white in tail; males: black and white; females: olive-brown and buffy white, and with lower plumage barred, not pied.

*G. wardi* (Pied Ground Thrush).

- (2) Head and most of lower plumage orange brown; males: back and scapulars bluish gray; females: back and scapulars greenish brown with yellowish edges.

*G. citrina citrina* (Orange-headed Ground Thrush).

- C.—Sexes unlike; upper plumage blue, or brown suffused with blue; lower tail coverts not white; males: lower parts and lower tail coverts same hue as rest of plumage; females: lower parts fulvous with sub-terminal black bars, lower tail coverts fulvous barred with black.

*Monticola solitaria pandoo* (Eastern Blue Rock Thrush).

- D.—Sexes alike: lower plumage barred, or spotted, even in adults. Genus *Oreocincla*.

- (1) Bill large and coarse; upper plumage with darker margins; lower plumage tawny buff with black crescent-shaped bars. *O. dauma imbricata* (Ceylon Thrush).

- (2) Bill more moderate; upper body plumage and tail unmarked brown; lower plumage white with black spots.

*O. spiloptera* (Spotted-wing Thrush.)

E.—A slight difference in sexes; plumage mainly dark blue, or brown suffused with blue; a bright blue patch on the "elbow" of the wing.

*Arrenga blighi* (Bligh's Whistling Thrush).

## 29. *TURDUS MERULA KINNISII*

### *The Ceylon Blackbird*

*Kalu-kurullā*, Sinhalese; *kari-kuruvi*, Tamil.

*Merula kinnisii* Blyth. J.A.S.B., xx. p. 177. (1851) (Ceylon); *Turdus kinnisii* Legge p. 449; *Merula kinnisi*, Oates & Blan. Vol. II. p. 124.

*Description*.—Male: Upper plumage, including wings and tail, slaty black, each feather with slightly paler, bluish gray margins, most noticeable on the wings and wing coverts; lower plumage slightly rusty black with paler margins, the abdomen tinged with grayish.

Female: Upper body plumage dark bluish gray, with blackish markings towards the tips; wing quills and tail slightly browner than in the male; under parts tinged with earthy brown; in some, probably not fully adult specimens, the feathers of the abdomen have light shaft-streaks.

In young birds the head and hind-neck are brownish, and the upper plumage has a distinct bluish gloss; the lower plumage is dull brown with buff shaft-streaks and dark tips.

Bill orange yellow; iris pale brown; legs and feet pale yellow; in young birds the bill and legs are brownish.

Length 9.5; wing 4.4; tail 3.6; tarsus 1.25; bill from gape 1.2.

*Distribution*.—Peculiar to Ceylon and confined to the hills above 2,500 or 3,000 feet. Allied sub-species occur on the hill ranges of Southern India.

*Habits*.—Rather a shy bird, passing most of its time in the jungle undergrowth, or on the edges of cover. It is not uncommon round Nuwara Eliya, and may be seen in the more secluded parts of the gardens in that town, or on up-country estates. Out of the breeding season it often collects in fairly large parties to feed on tree fruits in the jungle. It is a fair songster, and is most vocal in the early mornings and towards sunset. The breeding season is from April to June. The nest is a somewhat massive cup of grass, moss, and roots, strengthened with a few twigs and lined with fine roots. It is usually placed in a low fork of a tree, but may be found on stumps, niches in tree trunks, outhouses, &c.,

There are generally four eggs. The ground colour is pale green, blotched fairly evenly with reddish brown and amber, and with some smaller underlying spots of reddish gray. Average size 1.05 by .82.

### 30. GEOCICHLA WARDI

#### The Pied Ground Thrush

Vernacular names not recorded.

*Turdus wardi* Jerd. J.A.S.B., xi. p. 882. (1842) (Mysore); Legge p. 453, *Geocichla wardi*. Oates & Blan. Vol. II p. 137.

*Description*.—Adult male: Whole head, neck, breast, upper plumage, wings, and tail black; a broad, white stripe from the bill over the eye to the nape; wing coverts and quills with more or less conspicuous white tips, except the outer primaries and primary coverts, in which a portion of the outer web is white; rump and upper tail coverts with crescent-shaped, white tips; the two outer pairs of tail feathers all white, except for a patch of black on the outer webs; the amount of white decreases on the inner feathers, the central pair being almost wholly black; abdomen, vent, and under tail coverts white; sides of body and axillaries white, each feather with a broad, irregular crescent of black; wing-lining black tipped with white.

Females: Head, upper plumage, wings, and tail olive brown, the wing coverts and inner quills tipped with buff, the outer webs of the primaries with pale brown edges; a few white tips on the rump and upper tail coverts; outer tail feathers with a patch of white on the tip; a buff streak from the bill over the eye to the nape; sides of head and throat mixed buff and dark brown; chin almost unmarked white; upper breast pale buff with broad, dark brown margins; lower breast and flanks white with crescent shaped, blackish bars; centre of abdomen, vent, and lower tail coverts white.

Immature males resemble females, but are of a richer brown above, while the breast feathers are olive brown with drop shaped centres.

Bill yellow, the base of the upper mandible dusky; iris brown; legs and feet pale brownish yellow.

Dimensions a little variable; length about 8.5; wing 4.5; tail 3.2; tarsus 1; bill from gape 1.15.

*Distribution*.—Breeds on the Himalayas and appears to winter chiefly in the hill ranges of Southern India and Ceylon. It has been seen on passage in various parts of the Indian Peninsula. In Ceylon it is a north east monsoon migrant to the hills at elevations of over 2,500 feet. In some localities it appears to be irregular in its visits, in others more constant.

*Habits*.—A shy bird, which keeps mainly to thick cover on the outskirts of forest, patana woods. &c. It occasionally leaves its shelter, and may be seen on the lawns in up-country gardens. At times it collects in small scattered flocks to feed on fruits, such as guavas and wild figs, being partly frugivorous.

### 31. GEOCICHLA CITRINA CITRINA

#### The Orange-headed Ground Thrush

Vernacular names not recorded.

*Turdus citrinus* Lath. Ind. Orn. i. p. 350. (1709) (India) (Cachar); *Geocichla citrina*, Legge 457; Oates & Blan. Vol. II p. 140.

*Description*.—Male: Whole head, neck, and lower parts to vent orange chestnut, darker on the crown, and paler on the lower parts; vent, thighs, and lower tail coverts pure white; feathers of back, scapulars, rump, upper tail coverts, and lesser wing coverts bluish gray with paler edges; the median wing coverts with broad, white tips; outer coverts and quills dark brown with bluish gray outer webs; the central tail feathers and the outer webs of the rest bluish gray, the remainder of the tail dark brown, the whole with indistinct cross-rays; axillaries white with pale gray tips; wing-lining gray tipped with white.

In females the chestnut parts are paler, and the gray of the upper plumage is washed with olive green; back and scapulars greenish brown with yellowish margins.

Bill blackish brown, the gape and base of lower mandible flesh colour; iris dark brown, legs and feet fleshy pink.

Length 8.5; wing 4.6; tail 3; tarsus 1.3; bill from gape. 1.1.

*Distribution*.—Breeds throughout a large part of the Himalayas. In winter it occurs sparingly in the plains of India proper, but is more common in Assam and N. Burma. In Ceylon it is one of our rarest migrants, single specimens having been recorded from the Jaffna and Hambantota Districts, Colombo and the Eastern Province. An allied sub-species is resident in S. India.

*Habits*.—May be looked for during the north-east monsoon by river banks, or the sides of paths in heavy forests. It keeps mainly to the ground, turning over dead leaves in damp spots in search of insects.

### 32. MONTICOLA SOLITARIA PANDOO

#### The Eastern Blue Rock-Thrush

Vernacular names not recorded.

*Petrocincla pandoo* Sykes, P.Z.S. 1832 p. 87. (Southern Ghats); *Monticola cyanus*, Legge, p. 460; *Petr. phila. cyanus*, Oates & Blan. Vol. II. p. 146.

*Description*.—Male: In winter the whole body plumage is blue, the colour brightest on the eye-brow, throat, and ear coverts; most of

the feathers have narrow, whitish fringes and dull brown, sub-terminal bars ; lores and round the eye blackish ; wings and tail dark brown, the quills edged with blue and tipped with white. At the end of winter the feathers nearly all lose their light fringes and dark bars, so that the body plumage is almost uniform blue.

*Female* : Upper plumage brown suffused with dull blue ; lower plumage fulvous with sub-terminal, black bars ; wing-lining and under tail coverts barred with black. In summer the fringes and bars largely disappear as in the male.

Young birds resemble females, but have broader white fringes.

Bill, legs, and feet black ; iris hazel.

Length about 9.5 ; wing 4.9 ; tail 3.4 ; tarsus 1.2 ; bill from gape 1.2.

*Distribution*.—The Blue Rock-Thrush breeds over a wide range from Southern Europe to China and winters in Northern Africa and Southern Asia. It varies considerably ; the present sub-species, which is the Eastern form, visits almost the whole of the Indian Empire in winter. In Ceylon it is only an occasional visitor, which has been recorded from a few localities in the hills.

*Habits*.—A shy, restless bird, which may be looked for in bare, rocky spots, especially, under high precipices. Birds which visit us appear to frequent the same locality during the whole of their stay.

### 33. OREOCINCLA DAUMA IMBRICATA

#### The Ceylon Thrush

Vernacular names not recorded.

*Zoothera imbricata* Layard. A.M.N.H. (2). xiii. p. 212 (1854) (Ceylon) ; *Oreocincla imbricata*, Legge. p. 455 ; Oates & Blan. Vol. II. p. 154.

*Description*.—Head and upper body plumage olive brown, slightly paler on the rump and upper tail coverts, the feathers with crescent-shaped, black tips, giving the plumage a scaly appearance ; feathers of the head and neck each with a pale shaft-streak, which adjoining the black tip becomes a tawny patch ; this is more noticeable in some specimens than in others ; wings dark brown, the secondary coverts tipped, and narrowly edged on the outer web with tawny buff, the primary coverts black on the inner web and tip, the outer web washed with tawny buff, the quills more faintly washed on the outer web with the same hue ; tail olive brown, the three feathers next the outermost on each side blackish, with paler tips ; face and lower parts rich tawny buff, the chin and abdomen paler, each feather with a bold, black, crescent-shaped tip ; these tips become almost obsolete on the chin,

centre of abdomen, and lower tail coverts; axillaries white at the base, black at the tip; wing-lining black, tipped with white.

Bill blackish brown, paler at base of lower mandible; iris brown; legs and feet fleshy brown, at times with a bluish tinge.

Length about 9.5; wing 4.9; tail 3; tarsus 1.1; bill from gape 1.4.

*Distribution*.—Peculiar to Ceylon and confined to the hills over 3,000 feet. Allied sub-species are found on the Nilgiris, Eastern Himalayas, and in Burma.

*Habits*.—An uncommon and shy bird, which may be found in open, but secluded spots in wooded country, or in thick scrub. It keeps almost wholly to the ground, turning over fallen leaves for the insects on which it feeds. The nest and eggs have recently been found by Messrs Aldworth & Tunnard. The nest is a fairly deep, wide cup of green moss and fern leaves, lined with fine, black roots. It is placed at some height from the ground in the fork of a small tree. The two eggs are oval, rather pointed at the small end. The ground colour is pale, dull, gray green with faint red brown markings sparingly scattered over the whole egg, but inclined to be more profuse at the large end. The size and shape vary somewhat. Two eggs from different nests measure 1.38 by .89 and 1.25 by .95.

### 34. OREOCINCLA SPILOPTERA

The Spotted-winged Thrush (Pl. II. Fig. 3.)

*Wal-avichchiyā*, Sinhalese.

*Oreocincla spiloptera* Blyth. J.A.S.B., xvi. p. 142. (1847) (Ceylon); *Turdus spiloptera*, Legge, p. 451; Oates & Blan. Vol. II. p. 155;

*Description*.—Upper plumage and lesser wing coverts rich olive brown with a tinge of russet; median and greater wing coverts blackish brown with a clear white spot on the tip; wing quills dark brown, the outer webs with paler edges; tail rusty olive brown with very faint cross-rays; lores whitish; ear coverts and cheeks mixed black and white; lower parts white, the sides of the breast and body tinged with gray; the feathers of the fore-neck, breast, and upper half of the abdomen tipped with more or less fan-shaped black spots; axillaries white, tipped with dark brown; wing-lining dark brown, tipped with white.

In birds from the wet zone the upper plumage is darker than in specimens from drier districts.

In nestlings the feathers of the upper plumage have pale shaft-streaks, while the spots on the wing coverts, and the ground colour of the lower parts are buff.

Bill blackish, paler near the gape; iris brown; eye-lid lead gray; legs and feet dusky bluish gray, or fleshy gray.

Length about 8.4 ; wing 4 ; tail 3.1 ; tarsus 1.4 ; bill from gape 1.1.

*Distribution*.—Peculiar to Ceylon. Found in the hills up to about 4,000 feet and in the forests at their base, extending almost to the sea in the west and south-west. In the northern forest tract it is rarer, but has been obtained as far north as Trincomalee.

*Habits*.—A shy bird, which may be found in damp jungle, bamboo scrub, and forest undergrowth. It spends most of its time on the ground hunting for insects. The male has a pretty whistle, and sings from a perch on a low bough, chiefly in the morning and evening. Both sexes have a weak little note uttered while searching for food. The breeding season extends from January to about May. The nest is placed either in the fork of a sapling a few feet from the ground, or among the roots of a tree growing on a bank, or little eminence. It is a loose looking, though compactly put together structure of small twigs, roots, moss, and grass, lined with finer materials of the same sort, the egg cavity being a deep cup. There are two or three eggs, in shape regular ovals. The ground colour is pale bluish green, scattered over with markings of light reddish brown, or light red and reddish gray. The marks tend to coalesce at the larger end. Average size 1.12 by .75.

### 35. ARRENGA BLIGHI

#### The Ceylon Arrenga

Vernacular names not recorded.

*Arrenga blighi* Holds. P.Z.S. 1872. p. 444 (Ceylon) ; *Myiophonus blighi*, Legge p. 463 ; *Arrenga blighi*, Oates & Blan. Vol. i. p. 183.

*Description*.—Male : Head and neck dull black ; feathers of back, scapulars and breast dark blue with black bases ; a patch of bright blue on the least wing coverts and the point of the wing ; remainder of wing and the tail brownish black, the wing quills with narrow, bluish edges ; rump and upper tail coverts black, tinged with chocolate brown ; abdomen, vent, and under tail coverts dull brown.

According to Legge, females resemble males, but have a lighter and brighter wing spot.

Immature birds are largely dark brown above, with traces of the blue wing spot, and chocolate brown on the whole of the lower parts, the feathers of the forehead, throat, and breast with lighter centres,

Bill, legs, and feet black ; iris brown.

Length about 8.25 ; wing 4.3 ; tail 3.3 ; tarsus 1.4 ; bill from gape 1.25.

*Distribution*.—Peculiar to the Island and one of our rarest residents. It is confined to the hill country at elevations of over 3,000 feet.



*Habits.*—This species keeps to the neighbourhood of mountain streams running through forest-clad gorges. It hides in the shade of the forest, now and again showing itself on the rocks in the stream bed. The cry according to Legge, is a long drawn, plaintive, though loud, whistling note. Its diet appears to be mainly insectivorous. The breeding season appears to be about April. Of recent years the nest has been found by several observers. It is a compact, solid structure of moss and fern roots placed on a ledge of rock by the side of a waterfall, or rapid. One or two eggs are laid. The shape is oval with a more or less well defined smaller end. The colour is dull greenish white with some pale reddish brown stains. Size about 1.24 by .86.

## Family MUSCICAPIDAE

### *Flycatchers*

The Flycatchers are an extensive group of birds, in which, as in the Thrushes, the plumage of the nestling is normally mottled. They have, however, well-marked family characteristics. The bill is flat and pointed; in most species viewed from above it has the outline of an almost equilateral triangle; the upper mandible is simply notched, and has a perceptible little hook at the extreme point. The nostrils stand clear of the line of the forehead and are covered by numerous hairs, which spring from the forehead and lie over them horizontally. These hairs are a most characteristic mark of the Family, and are distinct from the rictal bristles. The rictal bristles themselves are generally strong and numerous. There are ten primaries and twelve tail feathers. The wing is *generally moderate in length and pointed. All species have feebly* developed legs and feet; they are incapable of sustained walking, and few of them ever descend to the ground. They are all insectivorous, and catch their food by darting out in short flights from a perch, to which they return. Many of them are migratory. There is one moult a year, in the autumn, and in most species the young change into the adult plumage at the end of the first autumn. There is one notable exception among our Ceylon species, the fully mature plumage of the male *Terpsiphone paradisi* being acquired only in the fourth year.

Ten species, belonging to eight genera, occur in Ceylon. They fall into two groups. First we have seven species, including four migrants, in which the tail falls short of the wing in measurement. In all these seven species the bill is not long, and is almost equilaterally triangular in outline; the rictal bristles are, save in *Culicicapa*, only

moderately developed; the wing is pointed and the tail square. The generic distinctions are largely based on the type of coloration, and are shown in the key which follows. In the resident forms of the above group the nest is either placed in a hole or ledge, or attached to the side of a rock, or tree trunk. We next come to three forms which are resident, or, at all events, mainly so. These are distinguished by their longer tails which are never square. The bill, though pointed and triangular, is generally longer than in the preceding group; the rectal bristles are long and numerous. In *Terpsephone* the bill is large and swollen, and the rectal bristles are coarse. All three species build the most beautiful, little, cup-shaped nests, which are placed either in a slender fork, or glued on to the top of a thin branch. The young of these three species are not noticeably mottled.

*Key to Ceylon Muscicapidae*

I.—Tail shorter than wing.

A.—Fore-neck and breast either rich chestnut, or ferruginous in adults.

- (a) Upper plumage brown; upper tail coverts black; some white on tail.

*Siphia parva hyperythra* (Indian Red-breasted Flycatcher).

- (b) Upper plumage generally blue; no black on tail coverts or white on tail. Genus *Cyornis*.

- (1) Males blue above; chin and throat dusky blue; females brown above; chin and throat dull rufous, like the breast.

*C. rubeculoides rubeculoides* (Blue-throated Flycatcher).

- (2) Both sexes blue above; in males point of chin black, remainder of chin and throat same colour as fore-neck; in females the dark chin-spot is lacking.

*C. tickelliae mesaea* (Oberholser's Blue Flycatcher).

B.—Sexes alike; greater part of both upper and lower plumage ashy gray, tinged with blue.

*Stoparola sordida* (Dusky Blue Flycatcher).

C.—Sexes alike; upper plumage plain brown, or rufous; lower parts white, or inconspicuously coloured. Genus *Alemonax*.

- (a) Upper plumage and tail ashy brown.

*A. latirostris poonensis* (Indian Brown Flycatcher).

(b) Upper plumage more ruddy brown; rump and upper tail coverts bright rufous brown.

*A. muttui* (Layard's Flycatcher).

D.—Plumage gray in front, yellow behind.

*Culicicapa ceylonensis* (Gray-headed Flycatcher).

II. —Tail as long as or longer than wing.

A.—Tail in males very elongated; a marked crest; head glossy black, rest of upper plumage chestnut, except in old males, when it is mainly white.

*Terpsephone paradisi paradisi*. (Indian Paradise Flycatcher).

B.—No crest.

(a) Tail same length as wing; plumage mainly azure blue.

*Hypothymis azurea ceylonensis* (Indian Black-naped Flycatcher).

(b) Tail longer than wing and fan-shaped; upper plumage mainly brown; a broad band above the eye and most of lower parts white.

*Rhipidura aureola compressirostris* (Ceylon White-browed Fantail Flycatcher.)

### 36. SIPHIA PARVA HYPERYTHRA

#### The Indian Red-breasted Flycatcher

Vernacular names not recorded.

*Siphia hyperythra* Cab. J.F.O. 1866 p. 391 (Ceylon); *Muscicapa hyperythra*, Legge p. 248; *S. hyperythra*, Oates & Blan. Vol. II. p. 10.

*Description*.—Male: Whole upper plumage to the rump dark ashy brown; wing coverts and quills dark brown edged with the hue of the back; upper tail coverts and four central tail feathers wholly black, remaining tail feathers white for two-thirds of their length, on the outermost feather the outer web is black for over half its length; lores, cheeks, and sides of neck ashen; chin, throat, breast, and sides of abdomen rich chestnut, bordered by a bold, black stripe from the gape down to the sides of the breast; rest of lower surface white, tinged with rufous on the flanks and under tail coverts.

Female: Upper surface with a more earthy tint; the black of the tail less pronounced; lores and round the eye grayish; the chin, throat, and breast are duller, and lack the dividing black border.

Young birds are brownish, streaked and mottled with fulvous; the lower parts are grayish in front, whitish behind; the chestnut tint appears

in dull mottled patches which spread and brighten, at the same time in males the black border begins to appear.

Bill brown above, paler near the forehead, the lower mandible and gape fleshy yellow, the tip dusky ; iris hazel brown ; legs and feet deep brown.

Length about 4·8 ; wing 2·75 ; tail 2 ; tarsus ·75 ; bill from gape ·6.

*Distribution*.—A north-east monsoon migrant, found in the central hill ranges over about 2,500 feet. This sub-species breeds in Kashmir, and winters apparently only in Ceylon. It has been observed on migration in October in the Deccan, so would seem to migrate down the centre of the Indian Peninsula.

*Habits*.—Generally frequents the edges of forest, trees by the side of jungle paths, the strips of wood which line the streams in patana country &c. It is a not uncommon visitor to shady gardens. It is irregular in its visits, being plentiful in certain localities one year and absent the next. The note, according to Legge, is a monosyllabic whistle, followed by a sharp little trill, recalling somewhat the note of the Wheat-ear. It is restless and active in its movements, and is generally found solitary.

### 37. CYORNIS RUBECULOIDES RUBECULOIDES

#### The Blue-throated Flycatcher

Vernacular names not recorded.

*Phoenicura rubeculoides* Vigors. P.Z.S. 1831 p. 35 ; *Siphia rubeculoides*, Legge p. 424 ; *Cyornis rubeculoides*, Oates & Blan. Vol. II. p. 23.

*Description*.—Male : Closely resembles that of the next species, but is a little smaller and brighter. The distinguishing features are the throat and chin, which are dusky blue.

Female : Upper plumage brownish olive, with a rusty tinge on the forehead, round the eye, and on the tail coverts ; wings and tail brown, with paler margins to the quills ; chin, throat, and chest dull rufous ; flanks paler ; abdomen and lower tail coverts white.

Young birds are brown streaked with fulvous, and with broad, fulvous tips on the wing coverts ; throat and breast bright fulvous mottled with brown ; abdomen white.

Bill black, the gape flesh coloured ; iris brown ; legs and feet grayish blue.

Length 5·7 ; wing 2·7 ; tail 2·2 ; tarsus ·7 ; bill from gape ·7.

*Distribution*.—A migrant species, which breeds in the Himalayas, and winters over a considerable portion of the plains of India and Burma. In Ceylon it has been obtained by Legge and Layard during the north-east monsoon, but only in the Jaffna peninsula and the northern forest

*Habits*.—A restless little bird which keeps to the undergrowth and lower branches in high jungle. The call is more varied and longer sustained than that of the following species.

### 38. CYORNIS TICKELLIAE MESAEA

**Oberholser's Blue Flycatcher** (Pl. III. Fig. 1.)

*Kōpi-kurullā, mārāwā*, Sinhalese.

*Cyornis tickelliae mesaea* Oberholser, Proc. Biol. Soc. Washington, xxxiii, p. 86 (1920) (Ceylon); *Siphia tickelliae*, Legge p. 421; *Cyornis tickelli* Oates & Blan. Vol. II. p. 25;

*Description*.—Male: Forehead and a streak over the eye shining blue, upper plumage dull blue; wings dull brown, the outer webs of most quills washed with blue; tail feathers blue, the shafts and much of inner webs brown; lores, face, and chin feathers adjoining the bill almost black; remainder of chin, throat, and neck bright ferruginous; breast and flanks paler; abdomen and under tail coverts white.

Female: resembles the male, but the upper plumage is lighter and has a faded appearance; lores whitish; cheeks bluish; no dark chin spot; chin, throat, and breast paler ferruginous than in the male.

Young birds are streaked with fulvous and resemble the young of the last species.

Bill blackish; iris brown; legs and feet bluish brown, or bluish gray.

Length 5·8; wing 2·8; tail 2·45; tarsus ·7; bill from gape ·75.

*Distribution*.—A resident form widely distributed over the whole of the Island up to about 4,000 feet wherever there is forest.

The sub-species is confined to Ceylon; allied races occur over the greater part of the Indian Empire and Malaya.

*Habits*.—Keeps to the undergrowth and lower branches in tall forest, and may occasionally be seen in untidy village gardens where there are jak trees. It is very active towards dusk. The call is a little whistling chirrup. I have taken eggs as early as February and as late as June. The nest is rather a deep, little cup of dead leaves, moss and grass, lined with finer materials, and placed in holes in banks, or trees. There is the usual number of eggs. They are so thickly speckled as to seem almost uniform olive brown, the colouring being often deeper at the larger end, owing to the greater density there of the markings. Average size ·77 by ·57.

### 39. STOPAROLA SORDIDA

**The Dusky Blue Flycatcher**

*Gini-kurullā*, Sinhalese.

*Glaucomyias sordida* Wald. Ann. M.N.H., (4) v. p. 218, (1870) (Ceylon); *Stoparola sordida*, Legge p. 419; Oates & Blan, Vol. II. p. 29.

*Description*.—Head and body plumage in general dull ashy gray, tinged with blue, which is brightest on the crown; forehead, an indefinite streak over the eye, and the chin washed with bright cobalt blue; lores and point of the chin black; abdomen, vent, and under tail coverts whitish; wing and tail quills dark brown, edged with the hue of the back.

Young birds are dark brown above, each feather with a tawny centre and a blackish border; feathers of lower plumage grayish with dark borders. The change into adult plumage is gradual.

Bill black; iris red brown, or brown; legs and feet dark lead colour.

Length about 6; wing 3; tail 2·4; tarsus ·75; bill from gape ·7.

*Distribution*.—This Flycatcher is confined to this Island, but a nearly related species *S. albicaudata* occurs on the hills of S. India. Another, *S. melanops*, occurs over the greater part of the Indian Empire. Our bird is fairly abundant up-country at elevations over 2,000 feet, but chiefly in the higher hills.

*Habits*.—Rather a quiet shy bird, seen chiefly on the borders of hill streams in jungle, by woodland paths, or on the outskirts of forest. It has a low, clear song. It generally perches on logs, rocks, or on branches fairly close to the ground. The breeding season is from March to May. The nest is placed in the crevices of trees, or on ledges in the banks of streams, or of path cuttings. It is a deepish cup of moss, the outside wall being built up from the ledge on which it rests, and is lined with a few, fine vegetable fibres. Two, or occasionally three eggs are laid. The ground colour is dull white with minute red spots, which generally form a cloudy zone, or cap at the larger end, leaving the rest of the egg scantily marked. Average size of a small series ·87 by ·58.

#### 40. *ALSEONAX LATIROSTRIS POONENSIS*

##### The Indian Brown Flycatcher

Vernacular names not recorded.

*Muscicapa poonensis* Sykes, P.Z.S., (1832) p. 85. (Poona); *Alseonax latirostris*, Legge p. 415; Oates & Blan. Vol. II. p. 35

*Description*.—Upper plumage ashy brown, the feathers of the crown with slightly darker centres; a faint tinge of gray towards the rump; lores and a thin ring round the eye whitish; wing coverts and quills dark brown, with ashy white margins to the coverts and inner quills; tail dark brown, the outer feathers with narrow whitish edges; under parts white, the flanks, breast, and fore-neck tinged with ashy gray. In young birds the crown is blackish with fulvous streaks; the upper plumage and wing feathers have large, fulvous spots; the lower plumage

is mottled with brown. After their first moult young birds are more rufous than adults.

Bill black above, the lower mandible yellow with a darker tip ; iris brown ; legs and feet black.

Length 5·2 ; wing 2·8 ; tail 2·1 ; tarsus ·5 ; bill from gap ·65.

*Distribution*.—A migrant to Ceylon, found during the north-east monsoon over the low-country, but nowhere abundant. It does not appear to ascend the hills to a height of over 3,500 feet. The subspecies ranges from Japan and Siberia in the north, to India. It breeds mainly in the north of its range and on the Himalayas, but some birds appear to be resident in other parts of India, and a few, probably immature birds, loiter in Ceylon, as it has been obtained in the Island in June.

*Habits*.—A solitary, quiet, but tame bird, which frequently escapes notice. It generally keeps to the boughs of shady trees, either in the forest, or even in gardens in the middle of habitations and close to frequented paths. It sits motionless for long periods, darting out at times from its perch to catch insects.

#### 41. ALSEONAX MUTTUI

##### *Layard's Flycatcher*

Vernacular names not recorded.

*Bulalis muttui* Layard, A.M.N.H. (2) xiii. p. 127 (1854). Ceylon ; *Alseonax muttui*, Legge p 417 ; Oates & Blan. Vol. II p 36.

*Description*.—Head and nape olive brown, shading through the rufous brown of the back into bright rufous brown on the rump and upper tail coverts ; wing coverts and quills brown, edged with the hue of the rump ; tail brown, the outer webs washed with rufous ; lores and a conspicuous ring round the eye white ; ear coverts olive brown ; chin and throat white ; cheeks, sides of neck, breast, and flanks yellowish brown ; abdomen and under tail coverts white.

Bill dark brown above, pale horny yellow beneath ; iris hazel brown ; legs and feet pale yellow.

Length 5·4 ; wing 2·8 ; tail 2·1 ; tarsus ·55 ; bill from gape ·7.

*Distribution*.—This species apparently breeds in Sikkim and other parts of the Himalayas. It winters in Travancore and Ceylon, and seems to migrate down the centre of the peninsula, as it has been obtained in October in the Deccan, while on passage. As with the last species, some birds appear to loiter, for the first specimen recorded was obtained by Layard at Point Pedro in June. It is an extremely rare bird, as yet noted only from the Jaffna peninsula, Trincomalee, and the Western Province.

*Habits*.—Not much is known about these, but they are probably much the same as those of the last species. It appears, however, to keep to the lower branches of trees by the sides of paths and small glades in the forest.

[*Note*.—*Ochromela nigrorufa*—The Black-and-Orange Flycatcher—is said to have occurred in Ceylon, but the evidence is doubtful. Layard identified a drawing of a bird, obtained in June at Ratnapura by Mr. Mitford, as being this species, which occurs on the hill ranges of South India in dense woods. The plumage is striking and unusual. In males the forehead, crown, nape, hind-neck, sides of head, and wings are black; the rest is rich orange, slightly paler on the abdomen; some of the wing coverts and inner quills have narrow, orange tips. In females the black of the head is replaced by greenish brown; the wings are dark brown and the orange parts are paler.

Length about 5; wing 2; tail 2·5; tarsus ·8; bill from gape ·6.]

## 42. CULICICAPA CEYLONENSIS CEYLONENSIS

### The Gray-headed Flycatcher

Vernacular names not recorded.

*Platyrrhynchus ceylonensis* Swain's Zool. iii. Series ii. (1820-21) (Ceylon); *Culicicapa ceylonensis*. Legge, p 410; Oates & Blan. Vol. II. p. 38

*Description*.—Head, cheeks, and hind-neck dark ashy gray, the feathers of the crown with darker brown centres; back greenish yellow, the colour brightening on the rump and upper tail coverts; wing coverts and quills dark brown, edged on the outer webs with the hue of the rump; tail dark brown, the outer webs of all but the two central feathers edged with the hue of the rump; throat, neck, and sides of breast pale ashy gray; rest of lower parts bright yellow; wing-lining pale yellow.

Bill brown above, pale horny yellow beneath; iris brown; legs and feet yellowish brown.

Length about 5; wing 2·5; tail 2·1; tarsus ·55; bill from gape ·55.

*Distribution*.—In Ceylon a hill species which rarely descends below 1,000 feet. Above this elevation it is resident and in many localities common. It occurs over practically the whole of the Indian Empire, except in the north-west, being a permanent resident in the hills and a winter visitor to the plains.

*Habits*.—A familiar species in most of the up-country forests and jungles. It frequents the lower branches of trees, especially by roadsides, streams, the edges of clearings, &c. It is generally found in pairs and flits about actively, ~~hawking~~ <sup>hunting</sup> for insects. The whistle is com-



pared by Legge to the syllables "tit-titu-wheree." The breeding season is probably about April and May. The nest is a little pocket of moss fixed to the trunk of a tree, or against a rock; at times there is a lining of fine stalks, or fibres, but frequently it is unlined. In India there are four eggs, but probably not more than three in Ceylon. They are dingy yellowish white, finely speckled with brown and gray, chiefly in a zone towards the larger end. Average size .61 by .48.

### 43. TERPSEPHONE PARADISI PARADISI

#### The Indian Paradise Flycatcher

*Redi-horā* (white phase), *gini-horā* (red phase), Sinhalese; *vedi-vāt-kuruni*, Tamil.

*Muscicapa paradisi* Linn. Syst. Nat. i. p. 234 (1766) (Ceylon); *Terpsiphone paradisi*, Legge p. 404; Oates & Blan. Vol. II. p. 45.

*Description.*—Females and young males: Forehead, crown, crest, and nape glossy, blue black; cheeks, chin, throat, and all round the neck ashy brown; on the fore-neck this colour gradually changes through the pale ash colour of the breast into white on the abdomen, vent, and lower tail coverts; upper plumage from the neck downwards, including wings and tail, chestnut; the inner webs of the wing quills duller brown; the tail is about 4.5 inches long.

The female continues in this plumage all her life, and the male until the second summer. He then gradually becomes blacker on the chin, throat, and hind-neck. After the second annual moult the head and neck are hooded in glossy blue black, which contrasts sharply with the ashy gray of the fore neck; the inner webs of the wing quills are almost entirely chestnut; at the same time the two central tail feathers grow to a length of 12 inches or more. After the third moult the breast grows lighter, and the bird gradually changes into the white plumage, the change being not complete until after the fourth moult, when the whole head, neck, and crest are glossy blue black with a metallic sheen, and the rest of the body plumage white; the feathers of the back and rump have black shafts; wing quills black with white margins, which increase in width on the inner quills; tail white, with conspicuous black shafts and black borders on the outer webs of all but the central feathers.

Bill and eyelids cobalt blue; iris dark brown; legs and feet a rather paler blue than the bill.

Adult males: length 16.5 to 19.5; wing 3.75; tail 12 to about 15; tarsus .7; bill from gape 1.05. Females: length about 9; wing 3.55; tail 4.5.

*Distribution.*—This Flycatcher is found over the greater part of India proper, and ranges west and north into Afghanistan and Tur-

*Habits*.—Not much is known about these, but they are probably much the same as those of the last species. It appears, however, to keep to the lower branches of trees by the sides of paths and small glades in the forest.

[*Note*.—*Ochromela nigrorufa*—The Black-and-Orange Flycatcher—is said to have occurred in Ceylon, but the evidence is doubtful. Layard identified a drawing of a bird, obtained in June at Ratnapura by Mr. Mitford, as being this species, which occurs on the hill ranges of South India in dense woods. The plumage is striking and unusual. In males the forehead, crown, nape, hind-neck, sides of head, and wings are black; the rest is rich orange, slightly paler on the abdomen; some of the wing coverts and inner quills have narrow, orange tips. In females the black of the head is replaced by greenish brown; the wings are dark brown and the orange parts are paler.

Length about 5; wing 2; tail 2.5; tarsus .8; bill from gape .6.]

#### 42. *CULICICAPA CEYLONENSIS CEYLONENSIS*

##### The Gray-headed Flycatcher

Vernacular names not recorded.

*Platyrrhynchus ceylonensis* Swain's Zool. iii. Series ii. (1820-21) (Ceylon); *Culicicapa ceylonensis*. Legge, p 410; Oates & Blan. Vol. II. p. 38

*Description*.—Head, cheeks, and hind-neck dark ashy gray, the feathers of the crown with darker brown centres; back greenish yellow, the colour brightening on the rump and upper tail coverts; wing coverts and quills dark brown, edged on the outer webs with the hue of the rump; tail dark brown, the outer webs of all but the two central feathers edged with the hue of the rump; throat, neck, and sides of breast pale ashy gray; rest of lower parts bright yellow; wing-lining pale yellow.

Bill brown above, pale horny yellow beneath; iris brown; legs and feet yellowish brown.

Length about 5; wing 2.5; tail 2.1; tarsus .55; bill from gape .55.

*Distribution*.—In Ceylon a hill species which rarely descends below 1,000 feet. Above this elevation it is resident and in many localities common. It occurs over practically the whole of the Indian Empire, except in the north-west, being a permanent resident in the hills and a winter visitor to the plains.

*Habits*.—A familiar species in most of the up-country forests and jungles. It frequents the lower branches of trees, especially by roadsides, streams, the edges of clearings, &c. It is generally found in pairs and flits about actively, ~~hawking~~ for insects. The whistle is com-

pared by Legge to the syllables "tit-titu-wheree." The breeding season is probably about April and May. The nest is a little pocket of moss fixed to the trunk of a tree, or against a rock; at times there is a lining of fine stalks, or fibres, but frequently it is unlined. In India there are four eggs, but probably not more than three in Ceylon. They are dingy yellowish white, finely speckled with brown and gray, chiefly in a zone towards the larger end. Average size .61 by .48.

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*Redi-horā* (white phase), *gini-horā* (red phase), Sinhalese; *vedi-vāt-kuruvi*, Tamil.

*Muscicapa paradisi* Linn. Syst. Nat. i. p. 234 (1766) (Ceylon); *Terpsiphone paradisi*, Legge p. 404; Oates & Blan. Vol. II. p. 45.

*Description*.—Females and young males: Forehead, crown, crest, and nape glossy, blue black; cheeks, chin, throat, and all round the neck ashy brown; on the fore-neck this colour gradually changes through the pale ash colour of the breast into white on the abdomen, vent, and lower tail coverts; upper plumage from the neck downwards, including wings and tail, chestnut; the inner webs of the wing quills duller brown; the tail is about 4.5 inches long.

The female continues in this plumage all her life, and the male until the second summer. He then gradually becomes blacker on the chin, throat, and hind-neck. After the second annual moult the head and neck are hooded in glossy blue black, which contrasts sharply with the ashy gray of the fore neck; the inner webs of the wing quills are almost entirely chestnut; at the same time the two central tail feathers grow to a length of 12 inches or more. After the third moult the breast grows lighter, and the bird gradually changes into the white plumage, the change being not complete until after the fourth moult, when the whole head, neck, and crest are glossy blue black with a metallic sheen, and the rest of the body plumage white; the feathers of the back and rump have black shafts; wing quills black with white margins, which increase in width on the inner quills; tail white, with conspicuous black shafts and black borders on the outer webs of all but the central feathers.

Bill and eyelids cobalt blue; iris dark brown; legs and feet a rather paler blue than the bill.

Adult males: length 16.5 to 19.5; wing 3.75; tail 12 to about 15; tarsus .7; bill from gape 1.05. Females: length about 9; wing 3.55; tail 4.5.

*Distribution*.—This Flycatcher is found over the greater part of India proper, and ranges west and north into Afghanistan and Tur-

kestan. A closely allied form occurs in the East Himalayas and Burma. In Ceylon this species is subject to a good deal of seasonal movement, concerning which we have much to learn. In the north-east monsoon both young and old birds are found all over the low-country, but more abundantly in the drier forest tracts. It is not very common above 2,000 feet, but is occasionally seen at quite high elevations, and such visits are apparently increasing. About March most birds appear to concentrate in the drier forest tracts. Here the younger birds pair and breed freely from April to June or even later. Long tailed red birds are not often observed during the south-west monsoon, and I have only once at this season seen a male in the full black and white plumage. They are either soon killed off, or else migrate to India.

*Habits*.—A fairly familiar bird, which is generally found in forest, or in shady spots not very far from water. It is by no means averse to the neighbourhood of man, and may often be seen in village gardens. It takes more extended flights after insects than many Flycatchers, and is less fond of returning time and again to the same perch. The cry is rather a grating, little, single note. The breeding season is chiefly in April and May, but may occasionally extend as late as August. The nest is a beautifully built, little, shallow cup of fine grass, fibres, &c., bound together with cobwebs and lined with similar, finer materials. I have generally found it placed about 6 feet from the ground in the fork of a downward slanting, thin, bare branch fairly close to the stem of the tree. With us there are generally three, often only two eggs. The ground colour is pinkish white, rather sparingly spotted, often in a zone, with brownish red. Average size .79 by .60.

#### 44. *HYPOTHYMIS AZUREA CEYLONENSIS*

##### The Ceylon Black-naped Flycatcher

*Gini-kurullā*, Sinhalese.

*Hypothymis ceylonensis* Sharpe. Cat. B.M. iv. p. 277 (1879) (Ceylon); Legge p 408; *H. azurea*, Oates & Blan. Vol. II. p. 49.

*Description*.—Male: Head, neck, back, rump, and upper tail coverts, throat, and chest azure blue, brightest on the head and throat; there is a distinct dividing line across the fore-neck between the two shades; the extreme point of the chin, the feathers adjoining the nostrils, and, in fully adult birds, a patch on the nape black; wing coverts and quills dusky brown, the coverts washed and the quills edged with the hue of the back; tail dusky brown, the central feathers and the outer webs of the others washed with azure blue; abdomen, vent, and lower tail coverts white tinged at times with faint blue.

Females lack the black nape patch ; the blue of the plumage is slightly duller and the brown lighter ; the breast is ashy blue, and the abdomen, flanks, and lower tail coverts tinged with gray.

Bill dark blue ; iris dark brown ; legs and feet bluish lead colour.

Length 6·1 ; wing 2·7 ; tail 2·75 ; tarsus ·6 ; bill from gape ·65.

*Distribution*.—The form found in Ceylon is a good sub-species, in which the black nape patch is small, and the black bar across the throat wanting. It is fairly abundant in forest and high jungle throughout the low-country and in the lower hills. Allied geographical races are found almost throughout the Indian Empire.

*Habits*.—A forest species, generally found singly, or in pairs, in secluded spots, often near water. It keeps largely to the undergrowth, or lower branches, and, like the last species, has a harsh, little cheep. The nest is a dainty, little cup of fine grass, coated with cobwebs, and placed in the fork of a young sapling among the forest undergrowth at no great height from the ground. The outside of the nest is generally an inverted cone in shape. There are two or three eggs, which are miniatures of those of the last species. Average size ·70 by ·52.

#### 45. RHIPIDURA AUREOLA COMPRESSIROSTRIS

The Ceylon White-browed Fantail Flycatcher (Pl. III. Fig. 2.)

*Endēra-kurullā, mārāwā*, Sinhalese ; *vali-marittan*, Tamil.

*Leucocirca compressirostris* Blyth J.A.S.B. xviii. p. 815 (1849) (Ceylon);

*Rhipidura albifrontata*, Legge p 412 ; Oates & Blan. Vol. II. p 52.

*Description*.—Crown, lores, ear coverts, and the feathers round the eye rusty black,; the forehead and a broad band over the eye to the nape white ; upper plumage and wings ashy brown ; the wing coverts with white spots on the tips; tail darker brown ; the central feathers unmarked, the next pair with white tips, which increase in length on the outer feathers, the outside pair being almost entirely white ; lower cheeks, chin, and throat rusty black, each feather edged with white ; lower throat and sides of breast unmarked, rusty black ; rest of lower parts white.

Females are slightly lighter brown ; in young birds the feathers of the back and wing coverts have rufous margins.

Bill, legs, and feet black ; iris brown.

Length 7 ; wing 3·15 ; tail 3·6 ; tarsus ·75 ; bill from gape ·68.

*Distribution*.—This species, divided into several geographical races, is found over the greater part of India, except on the west and north-west. The Ceylon form is a good sub-species, and has a peculiar distribution, confined to the east and south-east of the Island. The western limit of its main haunts runs from Tangalla to Haputale, then across the Uva

hills to the park country on the east of the central range as far north as the glades round Polonnaruwa. It is found all over the Hambantota District, but does not appear to occur near the sea in the Eastern Province. Scattered colonies exist outside these limits in a few localities in the Galle and Matara Districts, also in Pussellawa and other places on the central ranges. It is strange that a bird which is equally at home on the Uva hills and in the dry, hot chenas east of Tangalla has not spread all over the drier districts of the Island.

*Habits.*— A familiar little bird round Bandarawela, &c., where it is known as the "Drunken Piper" from its human little whistle, which resembles an attempt at the first line of a tune. It has also a grating little call note, not unlike the "scrit" of the Paradise Flycatcher. It is extremely restless, constantly flitting from perch to perch and flitting its fan-shaped tail. It descends to the ground more frequently than most Flycatchers. The breeding season is from April to June. The nest is an exquisite little cup of fine grass, coated with cobwebs and placed on the top of a bough, or in a small fork. The two or three eggs are creamy white, speckled generally in a fairly thick zone round the broad part of the egg with grayish brown. Average size .67 by .51.

## Family LANIIDAE

### *Shrikes*

The *Laniidae* were made by Oates to contain all the Shrikes, Minivets & Swallow-Shrikes. These together make up the group of *Passeres* in which the nestling is cross-barred. Stuart Baker however, has reverted to a classification followed by several authorities prior to Oates and has divided the group into three Families. In this classification the *Laniidae* are confined to those forms in which the folded wings do not reach beyond the middle of the tail, and in which the feathers of the rump are not spiny. The *Laniidae* as thus restricted comprise the true Shrikes, the Pied Shrikes and Wood Shrikes. All the members are insectivorous and the larger species tackle small birds, mice, frogs, &c. The bill is strong, hooked and notched; rictal bristles are present; the nostrils are clear of the line of the forehead and more or less overhung by bristles and hairs. There are ten primary quills, the first being of moderate length, and twelve tail feathers. There is one moult a year, in autumn. Shrikes are found all over the world except in S. America, but are most numerous in Africa. Five forms are found in Ceylon: three true Shrikes

with predaceous bills and a distinctive, mask-like, dark band across the face from the nostrils to the ear coverts; the tiny Pied Shrike with black and white plumage, a broad, flat bill and the habits of a Flycatcher, and the Wood Shrike, an inconspicuously coloured little bird with a strong bill well hooked and notched.

*Key to Ceylon Laniidae*

A. Outer tail feathers much shorter than inner; wing pointed.

(a) Bill deep and narrow, the tip well hooked and notched; a conspicuous dark band from the nostrils through the eye to the ear coverts. Genus *Lanius*.

(1) Length about 9; forehead black; crown and back pale gray.

*L. schach caniceps* (Southern Rufous-backed Shrike).

(2) Length about 7.5; forehead white; crown rufous, and darker than the back.

*L. cristatus cristatus* (Brown Shrike).

(3) Length 8; forehead and front of crown grayish white; back of crown grayish brown, like the back.

*L. cristatus lucionensis* (Philippine Shrike).

(b) Bill broad and flat, not greatly hooked; size small; length not quite 5.5.

(1) Cap of head and back glossy black.

*Hemipus picatus picatus* (Black-backed Pied Shrike).

B.—Tail square; wing blunt; bill strong, the tip well hooked and notched.

(a) Length about 6.25; upper plumage almost uniform ash gray.

*Tephrodornis pondicerianus affinis* (Ceylonese Wood-Shrike).

**46. LANIUS SCHACH CANICEPS**

**The Southern Rufous-backed Shrike** (Pl. III. Fig. 3.)

*Kāttu-puluni*, Tamil.

*Lanius caniceps* Blyth, J.A.S.B., xv. p. 302 (1846) (S. India); Legge, p. 383; *L. erythronotus*, Oates & Blan. Vol. I. p. 464.

*Description*.—Forehead and a broad band through the eye to the ear coverts black; crown, nape, hind-neck, sides of neck, back, and

scapulars pale gray, with a white edging, more pronounced in some birds than in others, adjoining the frontal band; the ends of the scapulars more or less tinged with pale rufous; rump, upper tail coverts, and flanks rust colour; wing coverts and wing quills black, more or less edged with white, or pale rufous, this is most noticeable on the inner quills; the edge of the wing and a band at the base of the inner primaries white; the three central pairs of tail feathers black, the rest brown with paler edges; chin, throat, and upper breast white; abdomen and lower tail coverts tinged with rust colour.

In young birds the upper plumage is pale sandy, darkening into rufous on the rump, and with wavy bars of brown; the central tail feathers are brown, tipped with rufous, and the band through the eye is blackish brown.

Bill black; iris hazel; legs and feet blackish brown.

Length 9; wing 3·6; tail 4·5; tarsus 1·05; bill from gape ·9.

*Distribution*.—Restricted to the Jaffna peninsula and the north-west of the Island. The species ranges over the whole of the Indian Empire to China and the Malay Archipelago, and is divided into various geographical races; the present sub-species occurs in Ceylon and S. India.

*Habits*.—Fairly common in scrub jungle near the sea throughout its range. It is rarely found far inland. It perches on the tops of trees and bushes, darting down to the ground on its prey, which consists chiefly of grasshoppers, and returning to its perch. It also feeds on frogs, which it impales on thorns in the regular Butcher Bird fashion. It is noisy and restless in the mornings and evenings, uttering its harsh cry and flying from bush to bush. The birds breed from February till about May, building a cup-shaped nest of rough grass, stalks, and slender twigs, lined with rootlets, or other soft material, and placed in a thorn bush. The eggs appear to be four in number. The ground colour is pale greenish, or creamy white, with blackish brown spots, which frequently form a zone at the larger end. Average size ·91 by ·70.

#### 47. LANIUS CRISTATUS CRISTATUS

##### The Brown Shrike

Vernacular names not recorded.

*Lanius cristatus* Linn. S.N. p. 93 (1758) (Bengal); Legge, p. 377; Oates & Blan. Vol. I. p. 468.

*Description*.—Adult male: Forehead and a streak over the eye white; a broad, black band from the nostrils through the eye to the ear coverts; the rest of the upper plumage and the lesser wing coverts reddish brown, the colour being brightest on the crown, nape, and sides of the neck; the larger wing coverts and the wing quills dark brown



with rufous edges, which are broadest on the secondaries; tail feathers reddish brown with paler tips; cheeks, chin, and throat white; rest of lower plumage fulvous.

In females the black streak through the eye is smaller and brownish.

In young birds on their first migration the crown and back are of the same rufous brown hue; the lower surface is largely marked with wavy, narrow bars, especially on the breast and flanks; these bars disappear very gradually, most birds retaining slight traces of barring on the flanks.

The tip of the bill and the greater part of the upper mandible blackish, the remainder pale bluish; iris dark brown; legs and feet bluish gray to blackish slate colour.

Length 7.5; wing 3.45; tail 3.4; tarsus 1; bill from gape .85.

*Distribution*.—A common migrant during the north-east monsoon. It spreads over nearly all parts of the Island, but is most numerous near the sea, especially in the dry zone. The sub-species has a wide range, breeding in Tibet, Mongolia, and Siberia, and wintering in Southern Asia, from Southern China to India.

*Habits*.—Found in scrub land, hedgerows, the borders of jungle, &c. A restless bird, perching on the tops of bushes and uttering a harsh ill-tempered cry. It feeds chiefly on insects, especially grasshoppers, but occasionally takes small birds.

#### 48. LANIUS CRISTATUS LUCIONENSIS

##### The Philippine Shrike

Vernacular names not recorded.

*Lanius lucionensis* Linn. *S.N.*, p. 135 (1766) (Luzon); Legge, p. 378; Oates & Blan. Vol. I. p. 469

*Description*.—Adult male: The forehead, the front of the crown, and a streak over the eye grayish white; a broad, black band from the nostrils through the eye to the ear coverts; hinder part of crown, back, scapulars, and sides of neck grayish brown; rump and upper tail coverts more rufous; wing coverts and quills blackish brown with pale rufous edgings, broadest on the innermost quills; tail feathers rufous brown, with paler margins; chin, throat, and sides of neck white; rest of lower parts pale buff.

In females the black streak through the eye is smaller and the under parts paler.

In young birds the upper parts are brownish rufous with faint, dark bars on the plumage; the lower parts are wavily barred with brown.

The tip of the bill and most of the upper mandible dark brown, remainder paler; iris brown; legs and feet dull lead blue.

Length 8; wing 3·5; tail 3·5; tarsus ·9; bill from gape ·87.

*Distribution*.—A very rare, north-east monsoon migrant; it appears to have been seen in Nuwara Eliya and one or two other localities, and there is a fine specimen in the Colombo Museum taken at Haldumulla in February, 1906. This Shrike breeds in Northern China and winters chiefly in the Philippines and Malay Peninsula. It occurs in the extreme South of Burma and in the Andamans, where it appears to be an occasional resident.

*Habits*.—Very much the same as those of the last species.

#### 49. HEMIPUS PICATUS PICATUS

##### The Black-backed Pied Shrike

*Panu-kurullā*. Sinhalese.

*Muscicapa picata* Sykes. P.Z.S., 1832, p. 85 (Deccan); *Hemipus picatus*, Legge, p. 375; Oates & Blan. Vol. I. p. 471.

*Description*.—Crown, sides of head to a line a little below the eye, and most of upper plumage deep black, slightly glossed with green; a more or less incomplete, white collar across the back of the neck; the feathers of the lower back and rump long and fluffy, the former mixed and the latter broadly tipped with white; wing coverts black with a white bar across the median coverts and the inner greater coverts; wing quills black with white edges on some of the secondaries; tail black, all save the middle feathers tipped with white, on the outer feathers the white extends to a large portion of the outer webs; chin, cheeks, sides of neck, vent, and under tail coverts white; rest of lower parts pinkish ash colour.

In Ceylon specimens the females appear similar to the males.

Bill black; iris reddish brown; legs and feet blackish.

Length 5·3; wing 2·3; tail 2·25; tarsus ·45; bill from gape ·7.

*Distribution*.—This small Shrike ranges over a large part of India and Burma, and extends east and south-east to Siam and Cochin-China. The sub-species found in Ceylon also occurs in the Indian Peninsula. It is widely distributed over most of the Island wherever there is forest, or heavy jungle, but is commonest in the hills.

*Habits*.—Generally found in pairs in tall trees near the edge of forest, or high jungle. It is plentiful about many up-country estates, where it is commonly misnamed the Black and White Flycatcher, owing to its habit of darting out from its perch and catching its food, which consists entirely of insects, on the wing, much in the manner of the true Flycatchers. It is really far from shy, but owing to its fondness for the top branches of tall trees it frequently escapes notice. The constantly uttered little call is likened by Legge to the syllables "tcheetiti, tcheetiti,

teeheeti—chee.” The breeding season probably extends from about February to May. The nest, which is hard to find, is a neatly made, shallow, little cup of grass and fine roots, covered outside with cobweb and flakes of lichen, and lined inside with soft fibres. It is placed in a fork, or on top of a branch at some height from the ground. There are generally three eggs. They are elongated ovals in shape. The ground colour is greenish white mottled with darker green and brown. Average size (of South Indian eggs) .69 by .49.

## 50. TEPHRODORNIS PONDICERIANUS AFFINIS

### The Ceylon Wood-Shrike

Vernacular names not recorded.

*Tephrodornis affinis* Blyth. J.A.S.B., xvi. p 473 (1847) (Ceylon); *T. pondiceriana*, Legge p. 372; *T. pondicerianus*, Oates & Blan. Vol. I p 475.

*Description*.—Upper plumage from forehead to tail coverts dark slaty gray to ashy brown, the tint varying with individuals; rump feathers tipped with white, upper tail coverts very dark brown; greater wing coverts and wing quills rather more brown than the back, the inner quills with pale edges; tail feathers dark brown, the two outer pairs white, except at the base and tip; a more or less distinct, whitish streak above the eye, and a band of dark brown from the nostril through the eye to the ear coverts; this is bordered below by another whitish streak, which includes the chin and centre of the throat; rest of lower parts ash colour, which gradually merges on the abdomen into the white of the lower tail coverts.

According to Legge the browner specimens come from the north, but in the Colombo Museum there is a gray bird from the Northern Province, and both gray and brown birds from the Central and Southern Provinces; the difference appears to be largely individual.

Nesting birds are paler, are conspicuously spotted with white on the head, and have wavy markings on the wings; these markings gradually disappear.

Bill dark horn colour, lighter beneath; iris yellowish brown; legs and feet dusky slate colour.

Length 6.2; wing 3.3; tail 2.5; tarsus .7; bill from gape .9.

*Distribution*.—Rather locally distributed, but occurs over the low-country and up to about 5,000 feet in the hills. The species ranges over practically the whole of the Indian Empire, but the sub-species found in Ceylon is confined to this Island.

*Habits*.—Generally found in low, spreading trees, such as *kaju* or *suriya*, round village compounds, by the roadside, on the edge of the jungle, &c. It is, for instance, fairly abundant in the avenues of *suriya*

trees along the roads round Puttalam. It keeps very much to the shelter of the trees, hopping about among the leafy branches in search of insects. The cry is rather a plaintive, little "weet, weet, weet."

The breeding season is from February to June. The nest is a very shallow cup carefully felted into a fork, or on to the top of a bough, and so covered externally with lichen and cobwebs as to seem a mere, natural excrescence of the bark. The lining is composed of soft fibres. The eggs, three in number, are dumpy ovals of pale grayish, or greenish white, rather thickly blotched with grayish purple and brown. Average size .77 by .60.

### Family PERICROCOTIDAE

#### *Minivets and Cuckoo-Shrikes*

The *Pericrocotidae* are a Family of Shrike-like birds; the chief difference between them and the *Laniidae* lying in the feathers of the rump, which are stiffened and spiny. The sexes too are generally markedly different. The wings are pointed and the tail feathers graduated. The members of the family are insectivorous and arboreal, but slightly more gregarious than the true Shrikes. Four species are found in Ceylon: two gaily coloured, little Minivets, and two Cuckoo-Shrikes. The latter have not such a gaudy plumage, while in the Large Cuckoo-Shrike the difference between the two sexes is not very pronounced.

#### *Key to Ceylon Pericrocotidae*

A.—Outer tail feathers less than half length of tail; upper tail coverts fiery red, or bright yellow; bill strong, legs weak. Genus *Pericrocotus*.

(1) Length 7.75; upper tail coverts red in males, yellow in females.

*P. speciosus flammeus* (Orange Minivet).

(2) Length just under 6; upper tail coverts red in both sexes.

*P. peregrinus malabaricus* (Malabar Small Minivet).

B.—Outer tail feathers more than three-quarters length of tail; upper tail coverts some shade of gray.

- (1) Length 7·75 ; bill comparatively weak ;  
males : head black, back slate gray ;  
females : upper plumage uniform  
brownish gray.  
*Lalage sykesii* (Black-headed Cuckoo-  
Shrike).
- (2) Length 10·25 ; bill massive ; sexes  
almost similar ; upper plumage almost  
uniform slate gray.  
*Graucalus macei layardi* (Ceylon Large  
Cuckoo-Shrike).

## 51. PERICROCOTUS SPECIOSUS FLAMMEUS

### The Orange Minivet

*Gini-kurullā* Sinhalese; *māmpala-kuruvi*, Tamil.

*Muscicapa flammea* Forster. Ind. Zool. p 25 (1781) (Travancore) ; *Pericrocotus flammeus*, Legge p 363 ; Oates & Blan. Vol. I. p 482.

*Description*.—Adult male : The whole head, throat, back, and scapulars glossy black ; lower parts from breast downwards, rump, and upper tail coverts brilliant orange red ; wing coverts and quills black, with a broad band of the same colour as the rump running across the quills from the outer web of the fifth primary ; a spot of the same fiery hue on the ends of the inner secondaries and of the greater coverts ; central tail feathers and the bases of the others black, remainder of tail fiery orange red ; thighs dusky black.

Females : On the wings and tail the orange red markings of the male are replaced by bright yellow ; forehead and entire under plumage also bright yellow ; rump and upper tail coverts greenish yellow ; top of head, hind-neck, back, scapulars, and lesser wing coverts dark bluish gray ; lores almost black.

Immature males resemble females ; as they grow older they gradually assume adult plumage, birds in the transition state having a very patchy appearance.

Bill, legs, and feet black ; iris reddish brown in males, brown in females.

Length about 7·75 ; wing 3·55 ; tail 3·55 ; tarsus ·6 ; bill from gape ·8.

*Distribution*.—Found both in the hills, where it is fairly common, and in the low country, where it is local. Both this and the next species appear to wander about a good deal ; some birds may be migrants from India, where this sub-species appears to be confined to the Western Ghats.

*Habits*.—May be met with in the tops of trees in hill forests and patana woods. In the low-country it usually keeps to the big trees along river banks and round tanks. Out of the breeding season it usually occurs in little troops of one cock and several hens. The nest has been found in Uva in December, but the breeding season probably continues throughout the north-east monsoon. The nest is rather a thick-walled, little cup composed of the finest twigs and coated externally with cobwebs and lichen. It is generally placed high up in a tree and is glued into a small fork, or on to the top of a slender bough. The eggs, apparently two in number, are of pale sea green, marked with pale yellowish brown and grayish purple. Average size (of Indian eggs) .90 by .67.

## 52. PERICROCOTUS PEREGRINUS MALABARICUS

### The Malabar Small Minivet

*Kos-kurullā*, Sinhalese.

*Parus malabaricus* Gmel. Syst. Nat. i, p. 1012 (1789) (Malabar); *Pericrocotus peregrinus*, Legge, p. 366; Oates & Blan. Vol. I. p. 487.

*Description*.—Male: Forehead, top of head, hind-neck, back, and lesser wing coverts dark ashy gray; lores, cheeks, ear coverts, chin, and throat black; rump and upper tail coverts scarlet, with generally a whitish band at the junction with the gray of the back; the greater wing coverts and wing quills black, with a band of orange red across the inner primaries and the secondaries; the three central pairs of tail feathers black, the next pair with a broad, orange red tip, the outer feathers orange red, except at the base; breast and flanks scarlet, the hue paling across the abdomen to orange yellow on the vent and lower tail coverts.

Female: The gray parts of the upper plumage are more ashy; wings and tail brownish, with much paler markings than in the male; lower parts whitish gray on the throat and breast, gradually changing into faint orange yellow on the abdomen and lower tail coverts.

Bill black; iris brown; legs and feet black in males, brownish black in females.

Length 5.9; wing 2.65; tail 2.65; tarsus .6; bill from gape .6.

*Distribution*.—This Minivet, divided into several geographical races, ranges over practically the whole Indian Empire and eastwards into Siam and Cochin-China. The present sub-species occurs in Ceylon and Malabar. It is found in suitable localities over most of the Island, but is more abundant in the north than in the damper south-west. It is fairly well distributed in the hills.

*Habits*.—Goes about in small troops, and has much the same habits as the preceding species, but is generally met with close to civilization, and not in the interior of forests. It is occasionally seen in Colombo.

It feeds chiefly on larvae and small insects. It appears to breed in April and May. The nest is a tiny edition of that of the Orange Minivet, and is placed in the same situations. The eggs are greenish white, marked with brown and purple, and measure about .7 by .52.

### 53. LALAGE SYKESII

#### Black-headed Cuckoo-Shrike

Vernacular names not recorded.

*Lalage sykesii* Strick. A.M.N.H. (L) xiii. p. 36 (1844) (Calcutta); Legge p. 369; *Campophaga sykesii*, Oates & Blan Vol. I. p. 493.

*Description*.—Male: Head, chin, throat, neck all round, and upper breast black; back, scapulars, lesser wing coverts, and upper tail coverts slate gray, the tail coverts with paler margins; median and greater wing coverts black, with gray at the tips and on the outer webs; primary coverts black, with a narrow white edge on the outer webs; primary quills black, with narrow white edges to the outer and a large white patch on the inner webs; secondaries with broader white borders and with a certain amount of gray on the outer webs of the innermost quills; the central pair of tail feathers gray, the rest black, tipped with white; chest and flanks pale gray; abdomen, vent, and lower tail coverts white.

Female: The upper plumage, including the lesser wing coverts, brownish gray; the rump and upper tail coverts rather lighter and with narrow, dusky bars; the rest of the wing coverts and wing quills dusky brown with fulvous white edges, the primaries with a large basal patch of the same colour on the inner webs; central tail feathers brownish gray, darkening to brown at the tips, and with faint, pale margins, the remainder blackish brown with white tips; ear coverts streaked with white; cheeks, sides of neck, and lower plumage fulvous white, with numerous, narrow, dusky brown bars, which disappear on the abdomen; vent and under tail coverts white.

In nestlings the lower surface is more closely barred than in the female; the upper plumage is slaty brown, each feather with a white tip and a dusky, sub-terminal bar.

Bill black; iris brownish red in males, brown in females; legs and feet black in males, brownish slate in females.

Length 7.5; wing 3.9; tail 3; tarsus .8; bill from gape .85.

*Distribution*.—Found over the greater part of the low-country, but most common in the maritime districts of the south-east and north. It ascends the hills to about 4,000 feet, and occasionally wanders to higher elevations. It occurs over the greater part of India proper.

*Habits*.—May be met with in a variety of situations, either in forest, low scrub jungle, hedgerows, or compounds. It is occasionally seen in

Colombo. Out of the breeding season the males are solitary, the females and young associate in small troops. The birds hunt diligently among the foliage for larvae and soft insects. Males have a clear whistle, females a chirping note. The breeding season appears to be about April. The nest is a small shallow cup made of fine twigs, bound together with cobwebs and placed in the fork of a tree, often at the end of a horizontal branch. The two eggs are greenish white, rather streakily marked with pale brown, and measure about .86 by .62.

#### 54. GRAUCALUS MACEI LAYARDI

##### The Ceylon Large Cuckoo-Shrike

Vernacular names not recorded.

*Graucalus layardi* Blyth. *Ibis*. 1866. p. 368. (Ceylon); *G. macei*, Legge p. 360; Oates & Blan. Vol. I. p. 496.

*Description*.—Male: nostrils, lores, the feathers round the gape, and under the eye black; ear coverts blackish; upper plumage, face, and sides of neck slate gray, sometimes with a bluish tinge; rump and upper tail coverts paler and with whitish tips; chin, throat, breast, and upper abdomen rather lighter gray, paling into white on the lower abdomen and vent; wing-lining and under tail coverts white; wing coverts blackish gray with black shafts; wings black, the quills edged with white, and the outer webs of the inner feathers largely gray; central tail feathers ashy gray, darker at the end and with pale tips, remainder black with grayish white tips, the feathers towards the centre with gray bases. Most birds retain traces of darker cross-bars on the under surface.

In females the nostrils, lores, and ear coverts are brownish and the general tone of the plumage lighter.

In immature birds the lower parts down to the fore-part of the abdomen are more or less heavily barred; in very young birds the upper plumage is tipped and margined with pale fulvous, and the lower parts are nearly pure white.

Bill, legs, and feet black; iris reddish brown.

Length about 10.25; wing 5.9; tail 4.4; tarsus 1.05; bill from gape 1.35.

*Distribution*.—Not very abundant, but fairly widely distributed in the drier forest tracts of the lower country. It also occurs in Uva and at other medium elevations, where the rainfall is not too heavy. The species ranges over practically the whole of the Indian Empire, but this sub-species is confined to Ceylon.

*Habits*.—Rather a shy, forest bird, generally found in tall trees, especially in the neighbourhood of rivers and tanks. Single specimens



are to be met with, but immature birds generally associate in small troops. The cry is a harsh "kur-eech." The food consists of caterpillars, beetles, &c. It breeds apparently in July and August, chiefly in *palu* trees. The nest, which is small for the size of the bird, is a shallow cup of small twigs, lined inside with grass and leaves, and felted with cobwebs to the top of a branch, or into a fork high up in the tree. The three eggs are pale green marked with brown and purple, and measure about 1.22 by .9.

### Family ARTAMIDAE

#### *Swallow-Shrikes*

These are birds of rather Swallow-like form with long wings, which enable them to spend much of their time in the air. They feed on insects, which they capture invariably on the wing. They are easily recognised by the strong, conical, pale blue bill, which is slightly curved and pointed, but neither hooked, nor notched. The nostril is nearly circular and almost entirely exposed. The first primary is very minute, but the second reaches to the tip of the wing. The tail is short and square; the legs and feet weak. The plumage is plain, and there is no difference between the sexes. Swallow-Shrikes are found from India to Australia. Only one species occurs in Ceylon.

### 55. ARTAMUS FUSCUS

#### The Ashy Swallow Shrike

*Tal-gas-kurullā*, Sinhalese; *mādam-pōru*, Tamil.

*Artamus fuscus* Vieill. Nouv. Dict d'Hist. Nat. xvii. p. 297 (1817) (Bengal); Legge p. 666; Oates & Blan. Vol. I. p. 498.

*Description*.—Lores black; head and hind-neck slate gray; back, scapulars, and rump smoky brown, with a slight reddish tinge in fresh specimens; upper tail coverts whitish; wings and wing coverts dark slate gray, the larger primaries almost dull brown on the exposed portions, all the quills with a very narrow, whitish margin on the tips and inner webs; tail dark gray, almost brown, with a whitish tip; chin, cheeks, and fore-neck slate gray, the chin and cheeks tinged with black; lower parts from the chest downwards dove gray with a vinaceous tinge, paling to white on the inner tail coverts, which are crossed with narrow, wavy, gray bars.

In young birds the upper plumage is duller, and the feathers have faint paler margins; the secondaries and inner primaries have broad, white tips.

Bill milky blue, blackish at the tip; iris dark brown; legs and feet slate colour.

Length 7.3; wing 5.2; tail 2.25; tarsus .65; bill from gape .95.

*Distribution*.—Widely distributed over the low-country. It is fairly common in Uva, but rarer in the Central ranges. In some districts it appears to be a partial migrant. It occurs throughout the greater part of the Indian Empire, and extends into Siam and China.

*Habits*.—May be found in small flocks round paddy fields, on open hillsides, tree-studded patanas, or clearings in the jungle. The birds perch in rows on tall branches, sallying out in twos or threes after insects, which are captured on the wing, or soaring for some time in the air and then returning to their perch. The breeding season is from February till about April. The nest is a shallow saucer of grass and roots loosely put together and placed generally at the junction of a palm frond with the stem, but at times in hollow trees, or on the surface of a large, horizontal branch. There are usually three eggs, rather narrow ovals, slightly pointed at one end. The ground colour is creamy white, marked with rusty brown. Average size .91 by .68.

## Family DICRURIDAE

### *Drongos*

The Drongos, or King Crows, with their black plumage and forked tails, form one of the best defined Families of the Order. The nostrils are clear of the line of the forehead. The beak is stout and covered at the base by thick-set hairs, or plumelets, which partially conceal the nostrils; the upper mandible is keeled, the tip is more or less hooked and provided with a single notch. The rictal bristles are well developed. There are ten primary quills. The tail of ten feathers is deeply forked. The nestling is marked with a certain amount of white, generally on the abdomen and lower tail-coverts. Members of the Family are found in Africa and South-eastern Asia. Of the five species which occur in Ceylon, three are referable to the genus *Dicrurus*, which has no crest, and a normally forked tail. Two larger, crested species are placed each in a separate genus. In *Dissemurulus* the tail feathers are proportionately longer than in *Dicrurus*, but the inner webs, though curling upwards at the end,

are normally webbed. In *Dissemurus* the outermost tail feathers, in adults, are greatly elongated and racket-shaped, the central portion of the shaft being practically webless. In some localities our local species appear to undergo a certain amount of seasonal movement.

*Key to Ceylon Dicruridae*

A.—Length under 12 inches; no distinct crest. Genus *Dicrurus*.

(a) Lower tail coverts not white throughout.

(1) Lower plumage black.

*D. macrocercus minor* (Ceylon Black Drongo).

(2) Lower plumage dark gray.

*D. leucophaeus minimus* (Ceylon Ashy Drongo).

(b) Lower tail coverts unmixed white.

Throat and breast dark brown.

*D. coerulescens leucopygialis* (White-vented Drongo).

B.—Length over 12 inches; forehead tufted.

(a) Hind feathers of the tuft erect; inner web of outermost tail feathers normal.

*Dissemurulus lophorhinus* (Ceylon Black-crested Drongo).

(b) Hind feathers of tuft curving backwards; terminal portion of outer tail feathers with a distinct racket in adults; with an indentation on inner webs in young birds.

*Dissemurus paradiseus ceylonensis* (Ceylon Racket-tailed Drongo).

**56. DICRURUS MACROCERCUS MINOR**

**The Ceylon Black Drongo**

*Kawudā*, Sinhalese; *eruttu-vālang-kuruvī*, Tamil.

*Dicrurus minor* Layard. A.M.N.H. (2) xii, 129 (1854) (Ceylon); *Buchanga atra* Legge p 386; *Dicrurus ater*, Oates & Blan. Vol. I. p. 312.

*Description*.—Plumage black glossed, with steel blue; in fresh specimens the gloss on the tail is slightly greenish; primary quills rather rusty black; there is a small, white spot at the lower corner of the gape, not always easily perceptible.

In young birds the wing quills and lower plumage are brownish ; the feathers of the abdomen are fringed, and the lower tail coverts barred with white, which gradually disappears as the birds grow older.

Bill, legs, and feet black ; iris brownish red, or red.

Dimensions a little variable : length about 11 ; wing 5.25 ; tail up to 6 ; tarsus .85 ; bill 1.10.

*Distribution* —The Black Drongo is found all over India, and extends into China, Siam, and Java. The Ceylon race is a distinct sub-species, which may also possibly occur in the extreme south of India. It differs from other Indian forms by its smaller size, comparatively longer tail and smaller bill. In Ceylon it is probably confined to the Jaffna peninsula and the coastal region of the Mannar District.

*Habits*.—Not uncommon in the localities in which it occurs. It frequents open and cultivated lands and scattered, thorny jungle, perching on posts and exposed branches and swooping out on passing insects, then returning to its post of vantage. It often also perches on the backs of cattle. The note is a rather melodious, metallic whistle. The breeding season is probably mainly in April and May. The nest is a very shallow cup placed in the fork of a leafy branch. The outside is fairly thickly bound with cobwebs, the interior lined with fine grass. Three appears to be the normal number of eggs in Ceylon. They are of two types: one pure white, the other pale salmon colour with rather bold, reddish brown blotches. Average size about 1.00 by .75.

## 57. DICRURUS LEUCOPHAEUS MINIMUS

### The Indian Gray Drongo

*Kawdā*, Sinhalese ; *eruttu-vālang-kuruvī*, Tamil.

*Dicrurus leucophaeus minimus* Stuart Baker, Nov. Zool, xxv, p. 296, (1918) (Ceylon); *Buchanga longicaudata*, Legge p. 390; *D. longicaudata*, Oates & Blan. Vol. I. p. 314.

*Description*.—Upper plumage metallic bluish black with a gray tinge which increases on the tail coverts ; wing quills and tail lusted with greenish on the outer webs ; lower parts dull grayish black.

In young birds the plumage is dark brown ; the lower parts are grayer than in adults, and the under tail coverts are tipped with white, which gradually disappears.

Bill, legs, and feet black ; iris red.

Length 10.5 ; wing 5.2 ; tail 5.9 ; tarsus .7 ; bill from gape 1.1.

*Distribution*.—Like the Black Drongo this species has a wide range over practically the whole of the Indian Empire, the Malay Peninsula, and Java, and is split up into geographical races. The small sub-species found in Ceylon appears to be a migrant from India. It occurs during

the north-east monsoon on the east side of the Island. One or two specimens have been shot near Colombo in October, probably while on passage.

*Habits*.—Generally found on the edge of open spaces in heavy jungle and forest. It perches on some point of vantage high up in a tree, swooping out on insects and returning to its perch. Its calls are rather shrill and varied. It is not likely to be found breeding in the Island. The nest is of the usual Drongo type, and the eggs resemble the spotted eggs of *D. macrocercus minor*, but are slightly smaller.

## 58. DICRURUS COERULESCENS LEUCOPYGIALIS

### The White-vented Drongo (Pl. IV. Fig. 2.)

*Kawudā, kawudā-pannikkiyā*. Sinhalese; *eruttu-vālang-kuruvi*, Tamil. *Dicrurus leucopygialis* Blyth. J.A.S.B. xv. p. 198 (1846) (Ceylon); *Buchanga leucopygialis*, Legge p. 392; *D. leucopygialis*, Oates & Blan. Vol. I. p. 316.

*Description*.—Specimens vary somewhat. In typical *D. coerulescens leucopygialis* from the south of the Island the upper plumage is black, glossed with steel blue; wings and tail brownish with a greenish blue gloss; chin, fore-neck, and breast rusty black; the lower abdomen often mixed with white; vent and under tail coverts white. Birds from up-country and the northern forest tract are paler; the throat and breast are a more grayish brown, and the white of the vent extends further up the abdomen.

Bill, legs, and feet black; iris red.

Length about 9·5; wing 4·75; tail variable, about 4·50; tarsus ·75; bill from gape 1·05.

*Distribution*.—Stuart Baker confirms my opinion that this form is merely a sub-species of *D. coerulescens*. It is peculiar to Ceylon, and is common all over the Island, up to about 4,500 feet, except in heavy forest, or in the Jaffna peninsula and that part of the Mannar District where the Black Drongo occurs.

*Habits*.—A familiar bird in the cultivated parts of the country; it may even be seen in Colombo gardens. It occurs also in open woods, the outskirts of chenas in the jungle, round tanks, &c. It is entirely insectivorous, and, like other Drongos, is fond of taking up a particular perch, from which it makes sallies. The ordinary note is a whistling cry. It is very pugnacious, and bullies birds far larger than itself if they come near. The breeding season is from March to May. The nest is a shallow cup, tightly wedged into the fork of a slender branch. It is lined with fine grass, and thickly coated outside with cobwebs. Three, or sometimes only two eggs are laid. In general they are rather stumpy

ovals, slightly pointed at one end ; some are more elongated. The colour is either pure white with bold, brick red markings, or pale salmon pink more or less boldly blotched, chiefly at the large end, with red, and with a few, fainter, underlying marks of grayish purple. Average size .92 by .69.

[*Note*.—Possibly stray specimens of the allied sub-species, *Dicrurus coerulescens coerulescens*, The White-bellied Drongo, most probably migrants from India, may occur in the N. of the Island. In this form the throat and breast are gray, not rusty black as in Ceylon birds, while the white of the lower plumage includes the flanks and the greater part of the abdomen.]

### 59. DISSEMURULUS LOPHORHINUS

#### The Ceylon Black-crested Drongo

*Kawudā, kaputā-bayā*, Sinhalese; *eruttu-vālang-kuruvi*, Tamil.

*Dicrurus lophorhinus* Vieill. Nouv. Dict. d'Hist. Nat. ix. p. 587. (1817) (Ceylon); *Dissemurus lophorhinus*, Legge, p. 396; *Dissemurulus lophorhinus* Oates & Blan. Vol. I. p. 322.

*Description*.—Plumage black, highly glossed with blue on the head, hind-neck, throat, and chest ; on the back, wing coverts, and tail the gloss is greener ; flanks and abdomen rusty black without any gloss. In immature birds the lower tail coverts and wing-lining are tipped with white.

Bill, legs, and feet black; iris dull brownish, or dark yellowish red.

Length, variable, up to about 14 ; wing 5.8 ; tail, in adults, up to 8 ; tarsus 1.05 ; bill 1.4.

The crest on the forehead is about  $\frac{1}{2}$  inch long, the foremost feathers are directed forwards, the hinder feathers erect, but not curved backwards.

*Distribution*.—Until lately this species was supposed to be peculiar to Ceylon, but recently it has been discovered in South Travancore, where it is not uncommon. In Ceylon it is restricted to the forests of the wet zone, from the Deduru-oya on the north to the Walawe river in the southwest. It is rarely found east of the Peak range, which it ascends to a height of about 4,500 feet.

*Habits*.—A forest bird, which is generally met with in pairs among the top branches of tall trees in the heart of the jungle. It is very noisy and has considerable vocal powers, being able to mimic calls of many species of birds. I have also heard it imitate a cat in the most realistic manner. Like the other Drongos, it is entirely insectivorous, and takes

its prey on the wing with a short swoop from a fixed perch to which it returns. The breeding season is about April. The nest and eggs are much the same as in the next species; but as a general rule the eggs are slightly broader and with duller markings.

## 60. DISSEMURUS PARADISEUS CEYLONENSIS

### The Ceylon Racket-tailed Drongo

*Maha-kawudā*, Sinhalese; *eruttu-vālang-kuruvi*, Tamil.

*Dissemurus ceylonensis* Sharpe. Cat Birds B.M. iii. p. 264 (1877) (Ceylon); *D. paradiseus*, Legge p. 399; Oates & Blan. Vol. I. p. 325.

*Description*.—Plumage black with a strong metallic gloss of steel blue, except on the chin, lower abdomen, vent, and the greater part of the wing quills, which are dull black. In immature birds the wing-lining and under tail coverts are tipped with white, and the racket feathers are not fully developed; but there is always, except in very young specimens, an indentation in the inner web of the long, outermost feathers.

Bill, legs, and feet black; iris brownish red to deep red.

Length: Males 17 to 19 inches according to length of tail; wing 6; tail 11 to 13; tarsus .95; bill from gape 1.25; Females rather smaller: wing 5.8; tail 10.11.

The crest on the forehead is up to 1 inch in length; the foremost feathers are almost erect; the hind feathers curve backwards.

*Distribution*.—The Racket-tailed Drongo is widely distributed over the greater part of India. It ranges eastwards into Hainan, and south-east through the Malay Peninsula to Java and Borneo. It is divided into a number of sub-species, the Ceylon form, confined to this Island, being distinguished by its small size, its comparatively short crest and shorter tail. It replaces the Ceylon Black-crested Drongo in the drier forest tract, especially in the north and east of the Island, but it is nowhere very abundant. It does not appear to ascend the hills above 2,000 feet.

*Habits*.—Like the preceding species, this is a forest bird, and has much the same habits. Its notes are varied, and it is an expert imitator of many other birds. In addition, it has a beautiful, clear, tinkling call, which is generally heard in the early morning. Like most Drongos, it appears to have an inveterate hatred of Owls and Woodpeckers. It is generally met with in pairs, or in small parties of four or five. The breeding season is from March to May. Three nests, of which I have data, were all found in roadside trees, where the road passed through heavy jungle. They were placed in slender forks at a considerable height from the ground, and resembled larger editions of the nest of *D. coerulescens leucopygalis*, but were more loosely woven and not so tightly

jammed into the fork. There are usually three eggs. They are broad ovals slightly pointed at one end. The ground colour is pinkish white with a moderate amount of reddish pink markings overlying more cloudy marks of grayish purple. All the markings are inclined to be streaky, and are most numerous round the cap. Average size 1.06 by .81.



## Family SYLVIIDAE

*Warblers*

The Warbler Family contains a very large number of species, found chiefly in the temperate and warm regions of the Old World. They are all of small size, and nearly all of plain appearance. The plumage of the nestling resembles that of the adult female, but is brighter. The nostrils are clear of the line of the forehead, the edges of both mandibles are smooth, or at times the upper mandible has a simple notch. The tarsus is generally slim and fairly long, its hinder aspect is smooth. The toes are also slim and longish and well adapted for clinging round grass stems, or thin sprays of foliage. The wing has ten primaries, the tail may have either ten, or twelve feathers. The sexes are generally alike, and when any difference does occur, it is small.

All species have a complete autumn moult, in addition to a partial, or complete spring moult. The spring moult is often accompanied by a distinct change in the shape and length of the tail. Several of our resident forms belong to species which undergo such a change. In this Island, however, such forms have a breeding season which extends intermittently for over half the year, and it is interesting to note that in Ceylon birds the difference between the breeding and winter plumage is far less marked than in specimens from further north, where the breeding season is shorter and more defined.

The majority of the Family are migratory, breeding in temperate regions and wintering further south. Not many of the migrant species, however, penetrate so far south as Ceylon, with the result that half the forms found with us are resident.

The Warblers have received their English name from their pleasing song, but, as their vocal powers are generally exercised only in the breeding season, and as these powers are sadly lacking in our resident species, the name is rather misleading so far as Ceylon is concerned.

More than 100 species belonging to over 30 genera are found within Indian limits. Seventeen different species, or sub-species have been recorded from Ceylon; of these one is generically and two are sub-specifically distinct.

As the plumage generally is plain, and as the generic and specific distinctions are based on rather minute differences, the group presents certain difficulties, unless carefully studied. I have however, endeavoured to make the key as simple and easy as possible. The forms found in Ceylon may be divided into three main groups:—

I.—Reed, Grass, and Bush Warblers with 12 tail feathers, short rounded feathers on the forehead, and without any bristles beyond the usual rictal bristles. Of these, we have eight species, most of which are resident. They are divided among seven genera. They are all restless little birds, which generally keep to reeds, long grass, or bushes, seldom taking long flights in the open. They spend most of their time actively threading their way among the grass-growth, or foliage, to the upright stems of which their slim toes enable them to cling in the most characteristic attitudes.

II.—Tree Warblers, which have 12 tail feathers, and in which the feathers of the forehead are soft, disintegrated, and with somewhat produced shafts. In addition to the rictal bristles, there are some supplementary hairs in front of them. In *Hypolais* and *Sylvia*, however, these bristles are small, and are clearly visible only under a lens; in *Acanthopneuste* they are more strongly developed. Six forms belonging to the above-mentioned three genera have been recorded from Ceylon. They are all migrants, and only two are regular visitors. They are generally found in trees, and not in bushes, or long grass.

III.—Three resident and common species of Wren Warbler belonging to the genus *Prinia*, which has only 10 tail feathers. The feathers of the forehead are smooth, and there are no supplementary bristles. In their habits they much resemble the Grass and Bush Warblers with 12 tail feathers, and have the same attitudes when perching.

#### *Key to Ceylon Sylviidae*

I.—Reed, Grass, and Bush Warblers; mainly resident; tail of 12 feathers; feathers of the forehead short and rounded; no bristles on the margin of the forehead, except the ordinary rictal bristles near the gape.

A.—Under tail coverts extremely long; tail only normally broad.

(a) Outer tail feathers less than threequarters length of tail.

(1) Upper plumage streaky; length under 5.5. *Locustella certhiola* (Pallas' Grass-hopper Warbler).

(b) Outer tail feathers more than threequarters length of tail; plumage dingy and not streaky.

- (1) Length 7·5, or over. *Acrocephalus sten-toreus amyae* (Mrs. Stevens' Great Reed Warbler).
- (2) Length about 5·5. *A. dumetorum* (Blyth's Reed Warbler).

B.—Under tail coverts more normal ; plumage extremely dark and soft.

- (a) Tarsus long and stout ; length about 6·5. *Elaphrornis palliseri* (Palliser's Warbler).

C.—Small forms ; length under 5.

- (a) Crown rufous ; back yellowish green. *Orthotomus sutorius sutorius* (Indian Tailor-Bird).
- (b) Upper plumage streaky. *Cisticola juncidis omalura* (Ceylon Streaked Fantail Warbler).
- (c) Upper plumage ashy brown. *Franklinia gracilis* (Franklin's Wren Warbler).

D.—Under tail coverts extremely long ; tail abnormally broad.

- (a) Length about 6. *Schoenicola platyura* (Broad-tailed Grass Warbler).

II.—Migrant Tree Warblers ; tail of 12 feathers ; feathers of forehead disintegrated and with lengthened shaft ; some supplementary bristles in front of the rictal bristles.

A.—No green in plumage, which is very plain.

- (a) Length about 5; forehead, crown and upper plumage sandy brown. *Hypolais scita* (Booted Tree Warbler).
- (b) Length about 6; forehead and crown gray, or brownish gray. Genus *Sylvia*.
  - (1) Crown dusky gray ; upper plumage grayish brown. *Sylvia althaea* (Hume's Lesser White-throated Warbler).
  - (2) Crown brownish gray ; upper plumage earth brown. *S. curruca affinis* (Indian Lesser White-throated Warbler).

B.—Upper plumage some shade of green. Genus *Acanthopneuste*.

- (a) Upper plumage bright green ; length about 5. *Acanthopneuste nitidus nitidus* (Green Willow-Warbler).
- (b) Upper plumage dull green ; length 4·2. *A. nitidus viridanus* (Greenish Willow-Warbler).
- (c) Upper plumage very dark green ; length about 5·4. *A. magnirostris* (Large-billed Willow-Warbler)

III.—Resident Wren-Warblers; tail of 10 feathers; plumage not streaked; under tail coverts normal. Genus *Prinia*.

A.—Upper plumage deep bluish ash colour.

(a) Length about 4.75. *Prinia socialis socialis*.  
(Ashy Wren-Warbler).

B.—Upper plumage dusky brown.

(a) Length 6, or over. *P. sylvatica valida* (Ceylon Jungle Wren-Warbler).

(b) Length about 5.25. *P. inornata jerdoni* (Southern Wren-Warbler).

## 61. LOCUSTELLA CERTHIOLA

### Pallas' Grass-hopper-Warbler

Vernacular names not recorded.

*Motacilla certhiola* Pall. Zool. Rosso-Asiat. i. p 509 (1811) (ultra Baicalen);  
*Locustella certhiola*, Legge p. 548; Oates & Blan. Vol. I. p 352.

*Description*.—Feathers of head blackish brown with olive brown edges; those of the back, scapulars, and wing coverts brownish black with broad, reddish brown margins; wing quills brown with pale rufous brown margins; rump reddish brown; upper tail coverts reddish brown with a large black drop on each feather; tail olive brown with similar, but more irregular black drops and rufous margins, the tips of all but the two central feathers whitish; a streak above the eye yellowish white; lores and a patch behind the eye brown; chin, throat, and middle of abdomen whitish; rest of lower plumage buff, darkening on the flanks and lower tail coverts to chestnut brown.

In young birds the under parts are tinged with yellow, and many of the throat feathers have dark centres.

Bill, upper mandible dark brown, lower pale horn colour; iris reddish brown; legs fleshy brown.

Length about 5.3; wing 2.35; tail 2.3; tarsus .85; bill from gape .7.

*Distribution*.—Legge obtained two specimens in the Mutturajawela swamp, north of Colombo, in February, 1877. This is the only Ceylon record. This species breeds in Northern Asia, and winters chiefly in China and the Malay Archipelago, but is not uncommon in the north-east monsoon in portions of Burma and India.

*Habits*.—A skulking little bird, which may on occasions visit us unnoticed. It should be looked for in grassy swamps and paddy fields. It lurks in the thick grass, and does not rise until almost trodden on, when it darts out to take cover again almost immediately.

**62. ACROCEPHALUS STENTOREUS AMYAE****Mrs. Stevens' Reed-Warbler***Hambu-kurullā*, Sinhalese; *tinu-kuruvi*, Tamil.

*Acrocephalus stentoreus amya* Stuart Baker, Bull. B.O.C xliii. p. 17. (1822); *Acrocephalus stentoreus*, Legge p. 541; Oates & Blan. Vol. I. p. 356.

*Description*.—Upper plumage olive brown with a tinge of fulvous, more pronounced in some specimens, on the back and rump; wings and tail brown, the outer webs edged with the hue of the back; an indistinct pale eyebrow; lores dark brown; chin and throat grayish white; lower cheeks and sides of neck generally streaky brown and white; lower parts from fore-neck pale fulvous, the flanks and the sides of the breast almost the hue of the back. In the breeding season the under parts are paler, and the feathers are much worn.

Bill, upper mandible dark brown, lower horny pink; iris yellowish brown, legs and feet plumbeous black.

Bill, upper mandible dark brown, lower horny pink; iris yellowish brown; legs and feet plumbeous black.

Length about 7.7; wing 3.2; tail 2.75; tarsus 1.05; bill from gape 1.02.

*Distribution*.—A resident among bulrush beds in swamps and tanks here and there in the dry zone of the low-country. This sub-species is found resident over some parts of India; an allied sub-species *A.s. brunnescens* is a migrant, breeding in Kashmir and other parts of the Himalayas, or in Central Asia, and wintering in the plains. Ceylon birds probably all belong to the darker resident race, or may possibly be referable eventually to a distinct sub-species.

*Habits*.—In Ceylon this Warbler appears to confine itself to bulrush beds. Its presence is generally detected by its harsh grating note, which is of great volume for the size of the bird. It is said to have a pleasing song in the breeding season. It is of very skulking habits, keeping mainly among the lower stems of the rushes and seldom showing itself. The food consists of flies and small insects. The breeding season is from June to August, and possibly also about March. The nest is a fairly deep cup of grass and strips of rush blades, lined with finer materials and wedged in among bulrush stems, to which the outer wall of the nest is attached. The two or three eggs are of pale greenish gray, rather thickly, but irregularly, marked with blotches and spots of black, yellowish brown, and grayish purple. Average size of eight Ceylon eggs .81 by .60.

**63. ACROCEPHALUS DUMETORUM****Blyth's Reed-Warbler**

*Hambu-kurullā*, Sinhalese ; *tinu-kuruvi*, Tamil.

*Acrocephalus dumetorum* Blyth. J. A. S. B. xviii. p. 815 (1849) (Kargopol. N. Russia); Legge p. 545 ; Oates & Blan. Vol. I. p. 359.

*Description*.—Ear coverts, sides of neck, and all the upper plumage olive brown, paling slightly towards the tail coverts; the colour varies a little with different specimens ; wings and tail deeper brown, edged on the outer webs with the hue of the back ; an indistinct pale streak over the lores to the eye ; lores dusky brown ; lower plumage pale buff, almost white on the chin, throat, and abdomen.

Bill dark brown, lower mandible horny pink ; iris olive brown ; legs pale horn colour.

Length 5·5 ; wing 2·4 ; tail 2·1 ; tarsus ·85 ; bill from gape ·7.

*Distribution*.—A familiar migrant found during the north-east monsoon over the whole of the low-country and in the hills up to about 4,500 feet. It breeds on the Himalayas and in Northern Asia, and occurs in winter over all India and most of Burma.

*Habits*.—Unlike the other members of the genus this species avoids reeds, and is generally found skulking in thick bushes, or low bushy trees, hunting for the small insects on which it feeds. On arrival in the Island it appears to remain with great regularity in the quarters which it has taken up for the season. It seldom appears in the open, but makes its presence known by its note, a sudden "chik." Towards the end of its stay it occasionally essays a slight warble, but its full song is developed only in the breeding season and so is not heard in Ceylon.

**64. ELAPHRORNIS PALLISERI****The Ceylonese Warbler**

Vernacular names not recorded.

*Brachypteryx palliseri* Blyth, J.A.S.B. xx. p. 178. (1837) (Ceylon) ; *Elaphrornis palliseri*, Legge p. 514 ; Oates & Blan. Vol. I. p. 191.,

*Description*.—Upper plumage olive brown with a rusty tinge on the rump, upper tail coverts, and tail ; wings dark brown, edged on the outer webs of the feathers with the hue of the back ; the centre of the tail feathers rather darker than the margins ; a faint whitish streak over the eye ; ear coverts dusky brown ; lores adjoining the gape whitish ; underneath the eye dusky brown ; chin whitish, deepening into rusty buff on the throat and gorget ; centre of abdomen yellowish ; rest of lower parts slaty olive, tinged with rufous on the flanks, thighs, and under tail.

In young birds the chin is dusky gray ; there is a slight tinge of buff across the centre of the throat, while the breast and lower parts are more greenish than in adults.

Bill, black above, slate coloured beneath ; iris clear red in males, buff in females ; legs and feet deep brown, or purple brown.

Length 6·5 ; wing 2·4 ; tail 2·6 ; tarsus 1 ; bill from gape ·8.

The position of this species is not yet exactly determined. It shows in its plumage and structure affinities with both the *Timaliinae* and the Warblers. The nest and eggs rather resemble those of a North Indian genus—*Tribura*—of Warblers, and it is now supposed to be an aberrant species of Warbler.

*Distribution*.—Peculiar to Ceylon, and confined to the main hill ranges over about 5,000 feet.

*Habits*.—Fairly common in the dense undergrowth of the forests on the higher hill ranges. It seldom appears in the open, but threads its way under cover with great activity in search of insects and small seeds. I once, however, watched a bird come out of the jungle and flit about the bushes in the garden of the Forest bungalow at Pattipola. It was intensely restless, never staying long in one position. Several of its attitudes were those of a Warbler, especially when it perched on a downward hanging spray with its feet wide apart, the lower leg stretched out, and the upper bent almost double. The call is likened by Legge to the sound "quitez," and is a sharp insect-like note. It also has a rapid little warble.

The nest has been found by Captain Aldworth and by myself on the edge of the jungles round the Horton Plains in April. My nest was about 3 feet from the ground in a wild box bush, which stood by the side of a path where it ran through a little grassy space in the jungle. It was a fairly massive, deep cup of moss, lined inside with carefully woven blades of soft dry grass. It contained two rather incubated eggs. They were oval, and only slightly pointed at the small end. The colour was whitish pink, thickly powdered all over with rather deeper purplish markings and with one or two long hair-lines of deep brown at the larger end. Size ·90 by ·67.

## 65. ORTHOTOMUS SUTORIUS SUTORIUS

### The Indian Tailor-Bird

*Battichchā, tāwīkā*, Sinhalese ; *thaiya-kāraṇ-kuravi, kōḍa-pākkān*, Tamil.

*Motacilla sutoria* Forst. Ind. Zool. I p. 7. (1769) ( ? Calcutta ) ;

*Orthotomus sutorius*, Legge, p. 517 ; Oates & Blan. Vol. I. p. 366.

*Description*.—Forehead and crown rufous, shading into ashy on the nape ; back, scapulars, rump, and upper tail coverts yellowish green ;

wing quills and tail feathers lightish brown, the latter with pale tips, a sub-terminal bar of darker brown, and bases of the same colour as the back; wing coverts and innermost wing quills edged with the hue of the back, the primaries with narrow pale edges; lores, cheeks, throat, and lower parts whitish, tinged with yellow; the flanks and sides of the chest ashy gray; thighs rufous; a concealed black patch on either side of the throat.

In the breeding season the male acquires an elongated tail, the central pair of feathers being about 2·5, while the next pair are also longer than in the off season.

Bill flesh coloured, darker on the ridge; iris reddish yellow; eyelid rufescent yellow; legs reddish flesh colour.

Length: Males out of breeding season about 4·3; wing 1·85; tail 2; tarsus ·75; bill from gape ·65.

Females are slightly smaller and with shorter tails; wing 1·7; tail 1·25.

*Distribution*.—Found all over the Island from sea-level to the summits of the hill ranges. This sub-species occurs over most of peninsular India.

*Habits*.—Equally common in town gardens, open country, or thick jungle. It is generally seen in pairs flitting about in bushes, or garden foliage. The birds make their presence known at all times of the day by their little grating "tewick, tewick," but they are wonderfully unobtrusive, and will often build, and bring up their young just outside one's verandah without attracting any notice. They are particularly restless when breeding. Their food is comprised mainly of small insects. They may be found breeding almost throughout the year, except during long periods of dry weather. The nest is a beautiful little structure of vegetable cotton, fine grass, or other soft materials lodged in a pocket made by sewing together the edges of one or two broad leaves. In Ceylon there are usually only three, very occasionally four, eggs. The ground colour is generally pale bluish green, at times almost white, or even pinkish, with fairly bold splashes of pale brownish red, chiefly at the larger end. Average size ·63 by ·45.

#### 66. *CISTICOLA JUNCIDIS OMALURA*

The Ceylon Streaked Fan-tail Warbler (Pl. IV. Fig. 1.)

*Tanakolā kurullā*, Sinhalese; *tinu-kuruvi*, *vayalān* (E. Prov.), Tamil. *Cisticola omalura* Blyth, J.A.S.B. xx. p. 176 (1851) (Ceylon); *Cisticola cursitans*, Legge p. 531; Oates & Blan. Vol. I. p. 374.

*Description*.—Males in breeding season: Forehead and sides of crown uniform sepia brown, the feathers on the centre of the crown and nape



more or less indistinctly edged with rufous gray; the rest of the upper plumage deep brown with broad tawny margins to all the feathers; rump uniform rufous tawny; wings and wing coverts dark brown with fulvous margins; tail deep brown with lighter edges, the feathers with broad, whitish tips and blackish, sub-terminal bands, which are seen most clearly on the under side; above the black bar is a rufous patch, which is mainly confined to the inner web; lores and eyebrow whitish; face and ear coverts rufescent, the latter with pale shafts; throat and lower parts white, deepening on the flanks, under tail coverts, and thighs into pale rust colour.

In the off season the head is more streaked, and the rufous patches on the tail disappear.

Females at all seasons have streaky heads.

Birds from the hills are darker and more plainly streaked than those from the low country.

Bill flesh colour, the ridge and tip darker; iris grayish yellow, or pale olive; legs pinkish.

Length about 4.3; wing 2.1; tail 1.3; in the off season about 1.5; tarsus .75; bill from gape .6.

*Distribution*.—Found in paddy fields, swamps, and grassy country all over the Island from sea level to the Horton Plains. The species occurs all over the Indian Empire, but the Ceylon form has been given sub-specific rank.

*Habits*.—This tiny little Warbler may be met with in any stretch of paddy field, grassy flat, or patana. It may be recognized by its curious spasmodic flight and the sharp little "chick, chick," which it utters while on the wing. On alighting it threads its way very quickly through the grass and is soon lost to sight. It appears to breed intermittently from November until June, or even later, and probably rears several broods during the year. The nest is a deep, tubular little structure placed generally in the middle of a tussock of grass; the outer wall is laced on to the surrounding grass blades, the interior is lined with vegetable down felted with cobwebs, or saliva. The three or four eggs are white, thickly spotted, generally in a zone round the larger end, with brownish red and purple. Average size .61 by .46.

## 67. FRANKLINIA GRACILIS

### Franklin's Wren-Warbler

Vernaoular names not recorded.

*Prinia gracilis* Frank P.Z.S. 1831. p. 119. (Vindhyani Hills); *P. hodgsoni*, Legge p. 523; *Franklinia gracilis*, Oates & Blan. Vol. I. p. 376.

*Description*.—Male in breeding season: Upper plumage dusky ash gray, the rump slightly paler, the wing quills dusky brown with paler rufous edgings; the tail feathers with a whitish tip and a sub-terminal, dusky patch seen most clearly on the under side; cheeks and lower parts white; the breast ash colour. In the off season the upper plumage and tail are rufous brown; the wings brown with broader, rufous edges; the white of the lower parts is tinged with fulvous.

In females the pectoral band is lighter than in males, and not quite complete in the centre. They are slightly smaller than males.

Bill blackish; iris reddish; legs fleshy yellow.

Length about 4·5; wing 1·75; tail 1·9 (in the off season up to about 2·25); tarsus ·7; bill from gape ·55.

*Distribution*.—This species appears to be confined to the south-east of the Island, its habitat being roughly bounded by a line drawn from Batticaloa through Madulsima and the southern slopes of the Uva range to the south coast, a few miles east of Tangalla. It occurs over the greater part of the Indian Empire.

*Habits*.—Decidedly a Bush and not a Grass Warbler. It frequents the edges of low jungle, underwood by the sides of paths, and deserted ohenas in which the growth is springing up. It frequently goes about in little family troops. The flight is weak, and the usual note a feeble little twitter. The breeding season appears to be about June. The nest is rather like that of a Tailor Bird, and is composed of fine grass stitched with cobwebs, silk, or wool, into the cavity of a leaf which is drawn round it. There seem to be three eggs; the ground colour is pale blue, in one type unspotted, in another finely speckled with brownish, or purplish red, often in a zone round the larger end. Average size ·59 by ·42.

### 68. *SCHOENICOLA PLATYURA*

#### The Broad-tailed Grass-Warbler

Vernacular names not recorded.

*Timalia platyura* Jerd. Madr. Journ. L.S. xiii. p. 170 (1844) (Nilgiris);

*Schoenicola platyura*, Legge p. 532; Oates & Blan. Vol. I. p. 384.

*Description*.—In the breeding season the upper plumage, including the sides of the head and neck, is ruddy brown; wing quills darker brown with brighter margins; tail brown with distinct dark cross-rays, the tips of the feathers paler; lores and an indistinct streak above the eye whitish; chin, throat, and centre of abdomen pure white; rest of lower plumage tawny brown. In the off season the upper plumage is duller, the whole lower plumage is whitish fulvous, the colour being

most pronounced on the breast and flanks ; the under tail coverts are darker and tipped with dull white.

Bill black above, pale horny below ; iris olive brown ; legs and feet pale brownish.

Length 6 ; wing 2·6 ; tail 2·7 ; tarsus ·9 ; bill from gape ·65.

*Distribution*.—A single specimen from Ceylon is in the British Museum. The exact locality is not known. It is found on the west coast of India, from Belgaum to Travancore, and appears to be resident throughout its range.

*Habits*.—Possibly a rare resident species, which should be looked for skulking in the long grass at the edge of paddy fields and on the outskirts of the jungle. Messrs. Cave and Symons believe they once saw two specimens in lantana scrub near the Government bungalows in Colombo. In South India it breeds about September. The nest is a ball of grass, with the entrance at one side, and is placed in a tussock of grass close to the ground. The four eggs are white spotted with brownish red, and measure about ·74 by ·6.

## 69. HYPOLAIS SCITA

### The Booted Tree-Warbler

Vernacular names not recorded.

*Sylvia scita* Eversm. Add. Pall. Zoogr. Rosso-Asiat. iii. p. 12 (1842) Urals; not in Legge ; *Hypolaïs caligata*, Oates & Blan. Vol. I. p. 393

*Description*.—Upper plumage sandy brown ; rump rather lighter ; wings and tail dusky brown with paler margins, the outer tail feathers lighter and with broader, almost pearl white margins ; lores brownish ; a pale, buff streak from the nostrils over the eye ; whole under plumage pale buff, the throat and centre of abdomen nearly white.

Bill brown above, fleshy below ; iris dark brown ; legs and feet pale brown.

Length 5 ; wing 2·35 ; tail 1·95 ; tarsus ·75 ; bill from gape ·55.

*Distribution*.—A recent addition to our list ; two specimens which have been kindly identified for me by Mr. Stuart Baker were procured by the Museum Collector on February 15, 1905, one at Mannar and one at Giant's Tank, 14 miles away. The distance apart of these two localities would appear to indicate an incursion of this species that year. Another specimen was procured in the Mannar District in February, 1921. This Warbler summers in Turkestan and Southern Siberia, and winters generally in Northern and Central India.

*Habits*.—A slender little bird, which is of the same genus as the English Icterine Warbler. It flits about the lower branches of trees and among bushes in search of insects. A good lookout should be kept

in the north-west of the Island from November to February for this and other rare migrant Warblers. It is quite possible that specimens visit us from time to time unnoticed.

## 70. SYLVIA ALTHAEA

### Hume's Lesser White-throat

Vernacular names not recorded.

*Sylvia althaea* Hume, Stray Feath. vii. p. 60-62 (1878) (India, Kashmir); not in Legge; Oates & Blan. Vol. I. p. 397.

*Description*.—Upper plumage mainly grayish brown; the crown rather dusky gray, the back more tinged with brown; wings dark brown with paler edges, the innermost quills almost the same hue as the back; central tail feathers dusky brown with pale margins, the outermost pair almost wholly white, only the base of the inner web and the shaft being brown, the remaining feathers have white tips, which are often abraded; the lores, round the eye, and the ear coverts dark brown; lower plumage, including the edge of the wing and the wing-lining, ashy white.

Bill brownish black, slaty blue at the base of the lower mandible; iris brown; legs and feet plumbeous black.

Length 6; wing 2.7; tail 2.5; tarsus .85; bill from gape .6.

*Distribution*.—Breeds in Central Asia and Kashmir and winters on the plains of India. There are several specimens in the Colombo Museum obtained at Mannar in February.

*Habits*.—A rare migrant, which should be looked for from November to February, especially in the north-west of the Island. It appears to keep chiefly to trees, but also frequents bushes, hedgerows, &c.

## 71. SYLVIA CURRUCA AFFINIS

### The Indian Lesser White-throat

Vernacular names not recorded.

*Sylvia affinis* Blyth, J.A.S.B. xiv. p. 364 (1845) (India); Legge p. 538; Oates & Blan. Vol. I. p. 397.

*Description*.—This form differs from *S. althaea* in being slightly smaller and having the plumage earth brown with a grayish tinge; the forehead, crown, and nape are brownish gray.

Bill dusky, slaty horn colour at the base of the lower mandible; iris yellowish brown; legs and feet plumbeous.

Length about 6; wing about 2.55; tail 2.2; tarsus .75; bill from gape .55.

*Distribution*.—The present sub-species is merely the eastern form of the Lesser White-throat, which is found over a great part of Europe. The eastern race breeds partly in Kashmir, but mainly, apparently, in

Siberia, wintering in the plains of India. There is a specimen in the Colombo Museum from the Eastern Province.

*Habits*.—Like the last species, this is apparently one of the migrants which on rare occasions penetrate as far south as Ceylon in the winter. It may be looked for from November to February. The habits are much the same as those of the last species.

## 72. ACANTHOPNEUSTE NITIDUS NITIDUS

### The Green Willow-Warbler

Vernacular names not recorded.

*Phylloscopus nitidus* Blyth, J.A.S.B. xii. p. 965. (1843) (Calcutta); Legge p. 351; *Acanthopneuste nitidus*, Oates & Blan. Vol. I. p. 413.

*Description*.—Upper plumage and sides of neck fairly bright yellowish green; wing coverts, wings, and tail brown, edged with the hue of the back, the greater coverts with pale yellow tips, forming a slight wing bar; lores and behind the eye olive; a distinct yellow streak from the nostrils over the eye to the nape; under parts almost primrose yellow; the wing-lining brighter yellow.

Bill brown above, paler beneath; iris dark brown; legs and feet olive gray.

Length about 5; wing 2.4; tail 2; tarsus .8; bill from gape .6.

*Distribution*.—A fairly common visitor during the north-east monsoon over the whole Island. It is found in winter throughout practically the whole of India westwards of Calcutta. Its breeding quarters are from the Caucasus to Afghanistan and Chitral.

*Habits*.—Generally seen in the upper branches of leafy trees being especially fond of jak trees. It keeps up a perpetual little chirrup, and like the Flycatchers, darts out from its perch to capture passing insects.

## 73. ACANTHOPNEUSTE NITIDUS VIRIDANUS

### The Greenish Willow-Warbler

Vernacular names not recorded.

*Phylloscopus viridanus* Blyth, J.A.S.B. xii. p. 967 (1843) (Calcutta & Nepal); Legge. p. 555; *Acanthopneuste viridanus*, Oates & Blan. Vol. I. p. 414.

*Description*.—Upper plumage dull olive green, lighter on the rump; wing and tail quills brown, edged with olive green; the wing coverts with broader, olive edges, and the greater coverts with tips of the same colour, forming a wing bar; a yellowish stripe over the eye; lores and behind the eye brown; ear coverts greenish yellow; lower plumage pale grayish yellow; wing-lining pale yellow. In summer the plum-

age is paler, and just before the moult the wing bar often disappears owing to the abrasion of the tips of the coverts.

Bill dusky brown above, paler below; iris dark brown; legs and feet brownish gray.

Length 4·2; wing 2·2; tail 1·7; tarsus ·7; bill from gape ·6.

*Distribution*.—This sub-species breeds in some parts of the Himalayas and winters over a great part of India. Stray birds probably visit Ceylon on occasions. There is a single specimen in the Colombo Museum obtained at Ratnapura in March, 1909.

*Habits*.—Much the same as those of the preceding sub-species. Specimens may be looked for during the north-east monsoon.

#### 74. ACANTHOPNEUSTE MAGNIROSTRIS

##### The Large-billed Willow-Warbler

Vernacular names not recorded.

*Phylloscopus magnirostris* Blyth. J.A.S.B. xii. p. 966 (1843) (Calcutta); Legge p. 553; *Acanthopneuste magnirostris*, Oates & Blan. Vol. I. p. 415.

*Description*.—Upper plumage very dark olive green, darkest on the head; wing coverts and wing brown, edged with rather brighter olive green, the median coverts have small and the greater coverts broader yellowish white tips, forming two wing bars; these bars tend to disappear towards the moulting season owing to abrasion; tail feathers brown, with olive green edges on the outer webs and pale tips on the lower surface; a yellowish white streak over the eye; lores and behind the eye brown; lower plumage pale grayish yellow; wing-lining pale yellow.

Bill dusky brown above, paler beneath; iris earth brown; legs and feet bluish gray.

Length 5·4; wing 2·7; tail 2·2; tarsus ·75; bill from gape ·65.

*Distribution*.—Like other Willow-Warblers, this species breeds on the slopes of the Himalayas, and visits a great portion of India in winter. During the north-east monsoon it is common in many parts of the Island, especially in the drier forest tracts. It also occurs on the hills.

*Habits*.—Unlike the Green Willow-Warbler, this species is not found near civilization, but prefers the jungle, where it keeps to the upper branches of trees. In its ways it resembles the Flycatchers, and its call is a whistle of three notes, which also rather resembles that of Oberholser's Flycatcher.

## 75. PRINIA SOCIALIS SOCIALIS

## The Ashy Wren-Warbler

*Hambu-kurulla*. Sinhalese; *tinu-kuruv*, Tamil.

*Prinia socialis* Sykes, P.Z.S. 1832. p. 89 (Deccan); *P. socialis* & *P. brevicauda*, Legge p. 520 & p. 1216; *P. socialis*, Oates & Blan. Vol. I. p. 450.

*Description*.—Upper plumage, including the head to just below the eyes, dark bluish ash colour; wings and tail umber brown, the tail feathers are slightly cross-rayed and have whitish tips and sub-terminal, black patches, seen most plainly on the under side; wing coverts umber brown, more or less washed with the hue of the back; lower parts and edge of the wing rusty buff, the centre of the breast and throat almost white, the thighs and flanks darker.

In the off season there is no great difference. The hue of the back is a little more brown, the wing coverts less tinged with ashy, and the tail about .3 inch longer. According to Legge, females have a more or less distinct streak of buff just above the lores and are paler underneath.

Bill black; iris pale red, or brownish yellow; legs and feet fleshy red.

Dimensions a little variable. Length in breeding season about 4.75; wing 1.85; tail 1.8; tarsus .75; bill from gape .6; in winter the tail measures up to 2.1.

*Distribution*.—Fairly widely distributed over the Island, but nowhere very numerous. The species divided into various geographical races is found almost throughout India proper. The present subspecies occurs in Ceylon and S. India.

*Habits*.—This Wren-Warbler is a permanent resident in the long *mana* grass of the patanas in Uva and elsewhere. In the low-country it wanders about a good deal, visiting fields of guinea grass when they are in growth and disappearing when they are cut. It is more permanent in the long grass round tanks and paddy fields and on the edges of jungle. The flight is feeble, but the birds are very active in threading their way through long grass stalks. The note is a feeble little warble. I have found the eggs in Uva in June and in the Puttalam District from December to March. The nest is said occasionally to resemble that of the Tailor-Bird, but is generally a neat, little domed structure of grass with the opening at one side. It is placed not far from the ground among tall grass stems, to which the outer wall is laced. The three eggs are of a glossy mahogany red, the colour being deeper at the large end. Average size .63 by .47.

## 76. PRINIA SYLVATICA VALIDA

The Ceylon Jungle Wren-Warbler (Pl. IV. Fig. 3.)

*Hambu-kurullā*, Sinhalese ; *linu-kuruvi*, Tamil.

*Drymoica valida* Blyth, J.A.S.B. xx. p. 180 (1851) (Ceylon) ; *D. valida*, & *D. jerdoni*, Legge pp. 525 & 527 ; *Prinia sylvatica*, Oates & Blan. Vol. I. p. 451.

*Description*.—Upper plumage dusky brown with an ashy tinge on the sides of the neck ; the margins of the wing and tail feathers a little brighter ; the tail feathers have a whitish tip and a sub-terminal, black spot, these marks show more plainly on the under surface, and are almost absent in the central pair ; the whole tail is faintly cross-rayed ; a whitish streak on the lores ; cheeks brownish, blending into pale buff on the chin and throat ; the buff tinge is a little deeper on the chest and flanks ; abdomen whitish ; thighs and lower tail coverts pale fulvous brownish.

In Ceylon the seasonal change appears to be much less marked than in the North Indian races, in which the bill becomes paler, the plumage brighter, and the tail distinctly longer than in summer. Mr. Stuart Baker suggests that the smaller seasonal change may be due to the extended breeding season in Ceylon ; our birds moulting at different times, whenever they happen to have finished breeding. The only difference I can find is that some specimens have paler bills than others. These are Legge's *Drymoeca jerdoni*, and are probably either young birds, or specimens in the off season.

Bill black, at times brownish, with a paler lower mandible ; iris hazel ; legs and feet fleshy.

Dimensions a little variable : length 6 to 6·4 ; wing 2·2 to 2·5 ; tail 2·4 to 2·8 ; tarsus ·8 ; bill from gape ·73.

*Distribution*.—The Jungle Wren-Warbler is found almost throughout India proper, west of Calcutta. It is divided into several sub-species, the Ceylon form being distinguished by its much darker colour and smaller seasonal change. It is found over most of the low-country and up to about 3,000 feet, but on the Uva patanas it ascends to considerably higher elevations.

*Habits*.—A common species in low, grassy jungles, in scrub by the sides of roads and paddy fields, or in young chena growth, patanas, fern lands, &c. The note is a fairly loud chirp. The diet is insectivorous. The breeding season lasts from October to June. The nest is a ball of woven grass, with the opening at one side, and is placed low down in coarse grass, or a thorny bush. Three, or occasionally four eggs are laid. The ground colour is of fairly glossy pinkish white, finely freckled all over with pale red. These markings often concentrate into a more pro-



nounced zone, or cap at the large end. I have seen two abnormal clutches and one egg of a normal clutch, in which the ground colour was clear white and the red freckles very faint and few. Average size .71 by .51.

## 77. PRINIA INORNATA JERDONI

### The Ceylon Wren-Warbler

*Hambu-kurullā*, Sinhalese; *tinu-kuruvi*, Tamil.

*Drymoica jerdoni* Blyth, J.A.S.B. xvi. p. 459 (1847) (Ceylon); *D. insularis*, Legge p. 529; *Prinia jerdoni*, Oates & Blan. Vol. I. p. 453.

*Description*.—Upper plumage dull earthy brown, the centre of the feathers slightly darker; forehead and forepart of crown tinged with rufous; rump much paler; wing and tail feathers brown with pale fulvous edges; the central tail feathers cross-rayed faintly; tips of tail feathers white with a sub-terminal, black spot, which shows most plainly on the under side; a pale streak from the nostrils over the eye and a narrow, white ring round the eye; lores at the corner of the eye brownish; lower plumage pale buff; the sides of the chest and belly more strongly coloured; flanks with a dusky tinge; thighs rusty brown.

There is very little difference either in the plumage, or in the length of the tail in the off season, though, on the whole, the plumage is slightly darker then. The seasonal change is far more marked in North Indian forms.

Bill black, the basal half of the lower mandible pale horny; iris pale reddish, or reddish yellow; legs and feet fleshy pink.

Length about 5.25; wing 1.9; tail 2 to 2.3; tarsus .8; bill from gape .65.

*Distribution*.—This species has a wide range over India and Burma and is divided into several sub-species. The Ceylon form is also found in South India. With us it is common round tanks and in paddy fields and grass lands in the low-country; on the hill patanas it occurs as high as 5,000 feet.

*Habits*.—The flight is weak and jerky, and the call a little "kink, kink, kink." The birds feed mainly on small insects and larvae. The breeding season starts with the earliest rains in October, or November, and lasts intermittently till June, or even later. The nest is a neat, little purse-shaped structure woven of thin strips of grass, or reeds, the outer wall being laced round the long stems of grass in which it is placed. The opening is at one side. In the low-country the site generally chosen is a clump of reeds, or long grass growing in, or near water. Three or four eggs are laid; the ground colour is a beautiful clear blue with bold blotches in various shades of chocolate brown and generally

some interlacing lines of the same shade at the larger end. Average size .60 by .45. It is interesting to note that the ground colour of the eggs in the different sub-species varies considerably. Those from Ceylon are the deepest blue; further north the colour is not so rich; in Oudh it is white, and in Burma pink.

### Family IRENIDAE

#### *Fairy Blue-Birds*

The Fairy Blue-Birds are now placed in a Family by themselves, but the position of that Family in the Order is a question of some difficulty. In some parts of their structure they show resemblances to the Bulbuls and in others to the Thrushes, especially of the Genus *Cochon*. Their eggs, however, are of a type distinct from that of either of the above two groups. Stuart Baker (Fauna of Brit. India. Birds Vol. I. 2nd. Edition p. 16) now places them before the *Oriolidae*, as the first of a group of four Families in which the plumage of the nestling is streaked. As in the Bulbuls there are a few long hairs springing from the nape; the tarsus is short and the habits arboreal. The wing is rather pointed and the tail coverts are of great length; the stout, curved bill is shorter than the head and has a notch at the tip. The plumage is pied and the sexes are unlike. All the members of this small Family are extremely beautiful birds. Only one species is found within Indian limits, and one race of this species occurs, probably as a rare straggler, in Ceylon.

### 78. IRENA PUELLA PUELLA

#### The Fairy Blue-Bird

*Nīl-rājā-kurullā*, Sinhalese.

*Coracias puella* Lath. Ind. Orn. i. p. 171 (1790) (India, Travancore); *Irena puella*, Legge p. 466; Oates & Blan. Vol. I p. 240.

*Description*.—Male: The whole of the upper parts, lesser wing coverts and under tail coverts glistening, ultramarine blue, shot with lilac; sides of head and lower parts deep black; greater wing coverts, wing quills, and tail black; some of the coverts have blue tips and the central tail feathers are washed with blue.

Females: Upper plumage, lesser wing coverts, and lower tail coverts brownish blue with brighter edges; tail brown, the central feathers and outer webs of the others, except the outermost pair, are of the same blue as the back; wing coverts and quills dark brown, the greater

coverts and innermost quills tinged with blue on the outer webs ; sides of head and lower plumage brownish blue.

The nestling appears to be streaked. Older, but immature birds resemble females, the change into adult male plumage is gradual.

Bill, legs, and feet black, iris crimson.

Length 10·5 ; wing 5 ; tail 4 ; tarsus ·80 ; bill from gape 1·15.

*Distribution*.—Very rare and probably a casual visitor. It has been obtained near Kandy and in the Ratnapura District. In India it occurs on the Malabar Coast, on the lower slopes of the Eastern Himalayas, the Assam hills, Burma, the Andamans, and Nicobars.

*Habits*.—May be looked for in tall forest. It feeds entirely on fruit and is generally found in small parties, or pairs, on the top of the higher trees. In India the breeding season is from February to April. The nest is a shallow cup of moss, or twigs, placed in a sapling, or small tree. Two eggs are laid. The colour is pale green, streaked and blotched with pale, dull, or reddish brown. Average size (of Indian eggs) 1·14 by ·77.

## Family ORIOLIDAE

### *Orioles*

The Orioles are the second of a group of Families in which the young are streaked. Only one genus is found in India, and only one species is at all common in Ceylon, another having occurred only as a rare straggler. In our Ceylon forms the adults are easily recognized by their rich yellow and black plumage. The young pass through several stages from the nestling phase, in which the upper feathers are greenish, tipped with yellow, and the lower parts white, streaked with brown, to the full adult dress.

The bill is about the same length as the head, the upper mandible is slightly curved, with the tip notched and hooked, the nostrils are horizontal slits, which stand clear of the feathers at the base of the bill, the rictal bristles are well developed. The wings are rather long and pointed, the first primary is more than half the length of the second. The tail is of medium length and slightly rounded, the tarsus is short, but fairly stout, and is covered in front by transverse scales. Orioles are arboreal in their habits, and feed on fruits and berries. Their notes are rich and flute-like.

*Key to Ceylon Oriolidae*

A.—Crown of head rich yellow.

*Oriolus indicus indicus* (Black-naped Oriole).

B.—Entire head, throat, and fore-neck black.

*Oriolus luteolus luteolus* (Indian Black-headed Oriole).

**79. ORIOLUS INDICUS INDICUS****The Black-naped Oriole**

Vernacular names not recorded.

*Oriolus indicus* Jerd. Ill. Ind. Orn. pl. 15. (Continental India); *O. diffusus*, Legge p. 355; *O. indicus*, Oates & Blan. Vol. I. p. 502.

*Description*.—Male: Lores, a band through the eye and the nape black; remainder of the body plumage bright yellow; wing coverts bright yellow, the inner webs of the greater coverts and the whole of the primary coverts, except the tips, black; primaries black with yellowish white tips and margins, the secondaries with wider margins and the innermost quills almost wholly yellow; tail feathers black with yellow tips, which increase in width on the outer feathers.

In females the yellow of the back is tinged with green.

Bill pinky red; iris rich blood red; legs and feet lead colour.

Length 9.75; wing 6; tail 4; tarsus 1; bill from gape 1.4.

*Distribution*.—Layard notes two specimens shot in Colombo, the only Ceylon record. This form appears to be migrant. It is found in winter over a considerable part of the Indian Peninsula but is nowhere common. The summer quarters are in China and Mongolia.

*Habits*.—Not much is on record concerning these, but it appears to be a forest bird, and less partial to cultivated districts than the next species.

**80. ORIOLUS LUTEOLUS LUTEOLUS****The Indian Black-headed Oriole**

*Kaha-kurullā*, Sinhalese; *māmpala-kuruvi*, *mānkuyil*, Tamil.

*Sturnus luteolus* Linn. Syst. Nat. x. ed. i. p. 167 (1758) (Bengal); *Oriolus melanocephalus*, Legge. p. 357; Oates & Blan. Vol. I. p. 506.

*Description*.—Male: Head, chin, throat, and fore-neck jet black; remainder of body plumage rich yellow; winglet black; primary coverts black with yellow tips; wing quills black, the primaries with narrow yellowish tips and margins, which are almost invisible on the first few quills; secondaries with broad, diagonal tips of brighter yellow, which increase on the innermost quills; tail yellow, with a broad patch of

black on the four central feathers and a smaller black area on the third pair.

In females the yellow of the back and breast is less bright and generally tinged with green.

In nestlings the feathers of the upper plumage are greenish with yellow tips, the lower plumage is white, streaked with brown. As soon as the young are fully fledged, the yellow tips on the upper plumage disappear, the streaks on the lower plumage turn black, and the whole plumage becomes more yellow. The adult dress is assumed gradually from this stage.

Bill black in quite young birds, gradually changing to pink in the adult; iris brown in the young, crimson in adults; legs and feet dusky bluish.

Length 9.5; wing 5; tail 3.2; tarsus 1; bill from gape 1.25.

*Distribution*.—This Oriole is found over the whole of India, except the north-west; also in Northern Burma, Ceylon, and the Andamans. It is replaced in Siam and E. Tennasserim by another sub-species. It is found all over the Island, wherever there are trees, either in gardens or forest, up to about 6,000 feet and occasionally higher.

*Habits*.—It is by no means shy, and may be seen close to human habitations. The breeding season extends throughout the north-east monsoon, from October to May. The nest is a deepish cup of grass and strips of bark, suspended by the rim from a horizontal fork at the extremity of a leafy branch. The eggs are two in number, very rarely three. They are pointed ovals of a pinkish white, or pale cream colour, sparingly marked with spots of dark reddish brown, occasionally almost black. Average size 1.10 by .79.

## Family EULABETIDAE

### *Grackles*

The Grackles, or Hill Mynahs, comprise two Ceylon species, which in many respects resemble large Mynahs. They differ, however, sufficiently to justify their separation into another Family, the chief outwardly distinctive feature being the fleshy, yellow wattles on the nape. Both Ceylon species have a brilliantly glossy, black plumage with a patch of white on the wing. The bill is stout and somewhat curved, the oval nostrils are rather sunken and lie just clear of the feathers at the base of the bill. Rictal bristles are present, but are not very pronounced.

The first primary is minute and the wings are long, but rather blunt; the tail is short and nearly square, the tarsi are stout and the feet strong. The call is a melodious whistle, and the birds can be taught to speak, or to whistle a few bars of a tune. They are strictly arboreal and feed on fruit.

*Key to Ceylon Eulabetidae*

A.—A patch of bare skin under the eye; base of lappets prolonged forward into a V-shaped ridge.

*Eulabes religiosa* (Southern Grackle).

B.—No bare skin under the eye; base of lappets not prolonged forward.

*Eulabes philogenys* (Ceylon Grackle).

# 81. EULABES RELIGIOSA

## The Southern Grackle

*Sela-lihinigā*, Sinhalese; *malai-nākanam-pāchchi*, Tamil.

*Graucala religiosa* Linn. Syst. Nat. i. p. 154. (1766) (Asia. Travancore);

*Eulabes religiosa*, Legge p. 682; Oates & Blan. Vol. I. p. 510.

*Description*.—Whole plumage rich black, glossed with purple on the head, cheeks, and hind neck, and with greenish on the rest of upper parts and throat; the feathers of the wing coverts and lower parts are glossed on the margins with green, and those on the side of the breast with bronze and purple; a patch of white on the first eight primary quills.

The wattling consists of a stripe of bare, yellow skin running backwards from the eye to the side of the nape, where it coalesces with a similar stripe from the side of the crown to form a broad lappet; there is also a square, naked patch just under the eye.

In young birds the lappets are only slightly developed and the plumage is more or less devoid of gloss.

Bill orange yellow; iris brown, the outer edge white with darker mottlings; legs and feet lemon yellow.

Length about 9.75; wing 5.7; tail 2.8; tarsus 1.2; bill from gape 1.4.

*Distribution*.—Found rather locally through the wet and medium zones up to about 1,500 feet. It occurs in the hilly and well-wooded portions of South India.

*Habits*.—This species is found in well-wooded country, on the borders of open spaces, round tanks, by river banks, &c., but is absent from the heart of the heavy forest. It is rather capricious in its distribution, and seldom wanders from its usual haunts. The cry is a shrill whistle, higher and more metallic than that of the next species. It is

generally seen in pairs, or small parties in the tops of tall trees, where it feeds on fruits and berries. The breeding season appears to be from June till about August. The nest is placed in a natural cavity in a tree, or in the old nest hole of a Barbet, or Wood-pecker. The bottom is scantily lined with a few dead leaves, &c. The two eggs are of light greenish blue, blotched with purple and chocolate brown. Average size (of South Indian eggs) 1·3 by ·88.

### 82. EULABES PTILOGENYS

The Ceylon Grackle (Pl. V. Fig. 2.)

*Mal-kavadiyā*, *kampatiyā*, Sinhalese; *malai-nākamam-pāchchi*, Tamil. *Graucala ptilogenys* Blyth, J.A.S.B. xv. p. 285 (1846) (Ceylon); *Eulabes ptilogenys*, Legge p. 685; Oates & Blan. Vol. I. p. 513.

*Description*.—Whole plumage black, glossed mainly with purple; a patch of white at the base of the first six or seven primaries. The wattling is confined to two lappets of rich yellow skin, which spring from the sides of the nape. In old birds these lappets meet at the base.

Bill orange red, the lower mandible for half its length and the upper mandible from the gape to the nostrils black; iris in males grayish white mottled with brown, in females white, or yellowish white; legs and feet gamboge yellow.

Length 10·75; wing 6; tail 2·75; tarsus 1·35; bill from gape 1·4.

*Distribution*.—Peculiar to Ceylon. It occurs in the well-wooded parts of the main hill ranges from about 6,500 feet to 1,500 feet. In the forests westward of the Adam's Peak range it appears to descend almost to sea level.

*Habits*.—Much the same as those of the last species. The call is rather less shrill. The nest and eggs also closely resemble those of the Southern Grackle; the eggs measure about 1·30 by ·98.

### Family STURNIDAE

#### Starlings and Mynahs

The Starlings and Mynahs form a large group, with a marked Family resemblance, found over a great portion of the Old World. Some species are migratory, others resident, but nearly all are gregarious. They are not nearly so arboreal as the Grackles, the greater portion of their food being obtained on the ground. The bill is generally moderately stout, only gently curved, or almost straight; but there is a distinct downward

bend of the mouth near the gape. There are no rictal bristles; the nostrils are rather narrow and almost horizontal; they stand clear of the line of the forehead, but the base of the bill is feathered down to their margins. The feathers of the crown and nape are elongated and in some species form a distinct crest. The first primary is minute. The tarsus is stout and the feet large. Four genera, each represented by a single species, are found in Ceylon, and one genus, *Sturnornis*, is peculiar to the Island. In the migrant genus *Pastor* the wing is long and pointed, the tail short and square; in the other three resident forms the wing is blunt and the tail more rounded.

#### Key to Ceylon Sturnidae

A.—A noticeable long crest in adults; no nude skin on side of head.

- (1) Wings pointed; throat and breast in adults black.

*Pastor roseus* (Rose-coloured Starling).

- (2) Wings blunt; lower parts reddish buff.

*Temenuchus pagodarum* (Brahminy Mynah.)

B.—Feathers of crown and nape only moderately elongated; a patch of bare skin on side of head.

- (1) Throat and fore-neck gray with white shaft-streaks; bare skin confined to a triangle behind the eye.

*Sturnornis senex* (White-headed Mynah).

- (2) Throat and fore-neck black; a large naked patch behind the eye.

*Acridotheres tristis melanosternus* (Common Ceylon Mynah).

### 83. PASTOR ROSEUS

#### The Rose-coloured Starling

*Māyina*, Sinhalese; *sura-kuruvī*, Tamil.

*Turdus roseus* Linn. Syst. Nat. x ed. i. p. 170 (1758) (Lapland); *Pastor roseus*, Legge p. 673; Oates & Blan. Vol. I. p. 518.

*Description*.—Summer: Head, neck, throat, upper breast, wings, and tail glossy black; feathers of the wing-lining black, edged with white; thighs, a patch on each flank, and the under tail coverts black, tipped with white; rest of plumage clear rose colour.

In winter the black feathers of the head, crest, neck, and throat are tipped with buff; the feathers of the back and breast are rosy at the base and brown at the ends; while the crest is not nearly so well



developed; at the end of winter the dull margins of the feathers wear off.

Females appear to be slightly paler, as a rule, and with a shorter crest.

In nestling birds the whole plumage is sandy brown, the feathers of the crown have darker centres, and there is no crest; the lower plumage is paler; the fore-neck is streaked with brown; the wing and tail quills are dark brown, edged with pale buff; after the first autumn moult the wings and tail become black, a patch of black appears on the upper breast, and the rosy tinge begins to appear on the back, breast, and abdomen; the full adult plumage does not appear to be assumed until the end of the second autumn.

Bill pinkish flesh colour, the ridge brown; iris brown; legs and feet yellowish brown.

Dimensions rather variable: length about 9; wing 5.2; tail 3; tarsus 1.25; bill from gape 1.15.

*Distribution*..—A rather uncertain migrant. It appears to breed in Western Asia from Turkestan to Asia Minor, migrating rather irregularly over a great part of Europe and Asia as far east and south as India and Ceylon.

*Habits*.—Occasionally a large flock visits the west and north of the Island; one such flock came to Puttalam for some weeks at the end of 1917. During their stay they frequent open grassy spaces and fields, feeding on grass seeds, grain, and insects. The whole flock roosts together in trees. The birds are generally extremely wary and difficult to approach.

#### 84. TEMENUCHUS PAGODARUM

##### The Brahminy Mynah

*Māyinā* Sinhalese; *nākanam-pāchchi*, Tamil.

*Turdus pagodarum* Gmel. Syst. Nat. i. p. 816 (1789) (Malabar); *Sturnia pagodarum*, Legge p. 677; *Temenuchus pagodarum*, Oates & Blan. Vol. I. p. 533.

*Description*.—Forehead, crown, and the long crest on the nape glossy black; face, neck all round, and lower parts down to the abdomen reddish buff, the feathers of the neck, throat, and breast elongated and with paler centres; upper plumage from the neck, wing coverts, and inner wing quills brownish gray; primary quills rusty black; tail brown, with broad white tips, except on the middle pair of feathers, which are dove gray shaded with brown; vent, thighs, and under tail coverts pearly white.

Young birds have no crest, the cap of the head is dark brown, upper plumage ashy brown, lower parts pale buff with a grayish tinge. The adult plumage is gradually assumed.

Bill bluish at the base, remainder yellow; iris pale topaz yellow; legs and feet pale yellow.

Length 8.25; wing 4.15; tail 2.75; tarsus 1.15; bill from gape 1.05.

*Distribution*.—Found only in the dry parts of the Island near the coast. It occurs in suitable districts over the whole of India proper.

*Habits*.—Although in India this species occurs far inland, with us it is never seen far from the sea. It is rather local, though plentiful where it occurs, as it associates in fairly large flocks, which from time to time shift their quarters to a distance of some miles. It is generally met with in scrubby country, or in grassy spaces dotted with bushes. The birds are wary and hard to approach. They feed chiefly on insects, small beetles, &c., but also on seeds and buds. They are said to breed in the north of the Island in July and August. The nest is a flimsy affair of grass and feathers placed in the hole of a tree. The eggs, three to five in number, are pale whitish blue, and measure about .97 by .75.

### 85. STURNORNIS SENEX

#### The White-headed Mynah

*Māyinā*, Sinhalese.

*Heterornis senex* Temm. Bonap. Consp. Av. i. p. 419 (1815) (Bengal in error for Ceylon); *Sturnornis senex*, Legge p. 680; Oates & Blan. Vol. I. p. 534.

*Description*.—Adult: Forehead, front of face, chin, throat, and ear coverts buffy white; remainder of upper plumage, including the wings and tail black with a greenish lustre; the feathers of the nape and neck with white shafts and those of the back faintly tinged with gray; the white of the upper throat passes into the lavender gray of the remainder of the lower parts, the fore-neck having conspicuous, narrow, white shaft streaks, which are less noticeable on the breast, flanks, and abdomen; vent and lower tail coverts unstreaked, and almost the same shade as the throat.

In young birds the upper plumage has a brownish tinge, the white on the top of the head is confined to the forehead and eyebrow, the lower parts are darker, while the shaft streaks on the breast and abdomen are broader and less streaky.

Bill pale bluish brown, leaden blue at the base; iris dull whitish with a narrow brown inner circle; eye-lid and skin round the eye dull bluish; legs and feet leaden blue.

Length 8.4; wing 4.3; tail 3; tarsus 1; bill from gape 1.1.

*Distribution*.—Pecculiar to Ceylon, and confined almost entirely to the slopes of the Peak range and the Kukul korale in the Ratnapura District.

*Habits*.—A rare bird. It appears to be entirely arboreal in its habits, and goes about in small flocks feeding on fruits and berries in the tops of trees. It may be looked for in open spaces dotted over with solitary trees and clumps of jungle, or on the edges of forest and by the side of jungle paths. The nest has been found by Mr. F. Lewis in April. The nest hole was in a tree stem, and much resembled that of the Ceylon Grackle—*Eulabes ptilogenys*. It contained two pale blue eggs laid on the bare wood. They are rather pointed at the narrow end, and measure 1.01 by .79.

## 86. ACRIDOTHERES TRISTIS MELANOSTERNUS

### The Common Ceylon Mynah

*Māyinā*, *gonkawadiyā*, Sinhalese; *nākanam-pāchchi*, *nākkālān* (E. Prov.), Tamil.

*Acridotheres melanosternus* Legge. A. M. N. H. (5). iii. p. 168. (1879) (Ceylon); Birds of Ceylon p. 670; Oates & Blan. Vol I. p. 538.

*Description*.—Forehead, crown, and elongated feathers of the nape, with the feathered portion of the cheeks and ear coverts, glossy black; chin, throat, upper hind-neck, and fore-neck less glossy black; remainder of upper plumage, with wing coverts and secondaries dark vinous brown; primaries and tail almost black, the tail feathers with white tips which are sometimes abraded, the primaries with white bases; primary coverts, edge of wing, and wing-lining white, the outer webs of the outermost primary coverts black; sides of breast and flanks vinous brown; centre of breast, top of abdomen, and the thighs dull black; rest of abdomen, vent, and lower tail coverts white.

In young birds the brown of the plumage has a more rufous tinge, there is no crest on the nape, and the abdomen is tinged with rufous.

Bill yellow, the lower mandible blackish at the base; iris brownish pink, pinkish gray, or at times whitish, mottled with brown; naked skin round eye yellow; legs and feet light yellow.

Dimensions variable: length about 10; wing 5.6; tail 3.3; tarsus 1.6; bill from gape 1.35.

*Distribution*.—The Ceylon form of this bird is now recognized as merely a sub-species of *A. tristis*, which occurs over practically the whole of the Indian Empire. The Mynah is one of the most familiar birds all over the cultivated portions of the Island, and ascends to a considerable elevation in the hills.

*Habits*.—A gregarious species, going about during the day in small troops, which may be seen in gardens, coconut estates, grassy lands, &c., or perhaps most frequently in attendance on groups of grazing cattle, not only securing the insects stirred up in the grass by the animals as they move along, but also perching on the backs of the beasts to feed on parasites. At night they roost in colonies. The favourite roosting site is often a clump of reeds, or low bushes in a marsh, or large tank. In such a spot the birds often congregate at night in hundreds. As Mynahs are easily tamed and can be taught to speak and whistle, they are familiar pets. The breeding season extends from March to August. The bird generally chooses for its nest an old Woodpecker's hole in the stem of a coconut palm, placing a pad of grass, roots, and fibres at the bottom of the cavity. The eggs usually number three, occasionally four, or even five. They are broad ovals of uniform, pale bluish green, slightly pointed at the smaller end, and measure about 1.16 by .84.

### Family PLOCEIDAE

#### *Weaver Birds and Munias*

With the *Ploceidae* we come to the first of two Families in which the bill is strong and conical, while the nostrils are pierced within, or only just outside the line of the forehead, and lie closer to the ridge than to the cutting edge of the bill. There is never more than the trace of a notch in the upper mandible. The primaries are ten in number, but the first is quite small. Africa is the strong-hold of the Family, but the group is also well represented in South-Eastern Asia and Australia. There are two Sub-families.

(a) *Ploceinae*.—Weaver Birds, in which the first primary, though small, is quite easily seen, and which have a partial spring moult, as well as the usual moult in autumn.

(b) *Viduinæ*.—Munias, in which the first primary is exceedingly small, and which have no spring moult.

### Sub-Family PLOCEINAE

#### *Weaver Birds*

The Weaver Birds comprise two Ceylon species of about the size of the Sparrow, to which in build they bear a considerable resemblance.

They feed largely on grain and are very gregarious. They always breed in colonies and take their name from the neatly woven, flask-shaped nests which they construct.

In addition to the autumn moult, there is a partial moult in spring, after which the males assume a bright yellow crown. The bill is stout and conical; the wings are of moderate length and rather rounded; the first primary, though small, is plainly visible and reaches just beyond the primary coverts; the tail of 12 feathers is short and rounded; the tarsus is strong, but of moderate length, the claws are fairly long and curved.

*Key to Ceylon Ploceinae*

A.—Breast plain, or not conspicuously streaked.

*Ploceus philippinus philippinus* (The Baya).

B.—Breast conspicuously streaked.

*P. manyar flaviceps* (Indian Striated Weaver Bird).

### 87. PLOCEUS PHILIPPINUS PHILIPPINUS

*The Baya* (Pl. V. Fig. 3.)

*Wadu-kurullā*, Sinhalese; *thākanān-kuruvi*, *manjā-kuruvi*, Tamil.

*Loxia philippina* Linn. Syst. Nat (xii) p. 305; (1766) (Ceylon); *Ploceus philippinus*, Legge p. 641; *P. baya*, Oates & Blan. Vol. II. p. 175.

*Description*.—Male in breeding plumage: Forehead, crown, and nape canary yellow, blending on the nape into the dark brown of the hind-neck; feathers of the back and scapulars almost black, with broad yellow margins; lower back and rump unstreaked brown; upper tail coverts with pale tips; wing coverts, quills, and tail feathers dark brown with pale fulvous edges; lores, face, ear coverts, and throat dark brown; breast bright yellow; rest of lower parts fulvous, paling into whitish on the vent and lower tail coverts.

Males in off season and females all the year round: The yellow is absent, the upper plumage being dark brown with fulvous margins; a fulvous streak over the eye; sides of head pale fulvous brown; lower parts pale fulvous, darker on the breast and flanks, and almost white on the abdomen, vent, and lower tail coverts; the sides of the breast and the flanks at times have narrow, brown streaks; wings and tail as in breeding male.

Bill, of male in breeding season, dark horny brown, lighter at the gape and base of the lower mandible, otherwise yellowish horn colour; iris brown; legs and feet flesh colour.

Length 5.85; wing 2.85; tail 1.9; tarsus .8; bill from gape .65.

*Distribution*.—*P. philippinus* occurs over the whole of the Indian Empire, and ranges south-east to Java and Sumatra. The present subspecies is found over the greater part of India proper. In Ceylon it is met with throughout the low-country, but is perhaps commoner in the maritime districts than inland. It is local and occasionally shifts its quarters.

*Habits*.—Occurs in flocks on the borders of open land and scrub jungle, generally not far from water, and frequently by the side of a paddy field, or tank. The neighbourhood of a flock can always be told by the incessant chattering and shrill whistling made by the birds. They have a strong, rapid flight and feed voraciously on paddy and other grain. The breeding season appears to be intermittent, and extends over a great part of the year, probably varying in different localities. I have taken eggs in February, June, August, and November. The birds breed in colonies, the long flask-like nests, familiar to most people, being hung from the fronds of a palm, or the spreading branches of a tree. The construction shows great skill. The upper part of the nest is cone-shaped and hangs from a single point. When this cone is woven to a sufficient length, the birds add a strong, transverse loop, like an inverted basket handle, a little to one side of the centre. The bottom of the egg chamber is then worked in one side of the loop, while on the other the weaving is carried downwards to form the long entrance funnel, which is added to by the male until long after the hen has begun to sit. There are generally two, but not infrequently three, and very occasionally four eggs. They are pure white ovals slightly pointed at the small end. Average size .79 by .57.

## 88. PLOCEUS MANYAR FLAVICEPS

### The Indian Striated Weaver-Bird

*Wadu-kurullā*, Sinhalese ; *thūkanān-kuruvi*, *manjā-kuruvi*, Tamil.  
*Ploceus flaviceps* Less. *Trait.d' Orn.* 1831. p. 435. (Pondicherry) ; *P. manyar*, Legge p. 646 ; Oates & Bian. Vol. II. p. 179.

*Description*.—Male in breeding plumage: Top of head rich yellow ; remainder of upper plumage, including wings and tail, deep blackish brown, with tawny margins to the feathers ; cheeks, ear coverts, sides of neck, and throat brownish black ; chest and flanks tawny brown with blackish shaft-stripes, which are broadest on the chest ; centre of abdomen, vent, and under tail coverts whitish. Both the amount of striation and the depth of colour on the lower parts vary.

Males in off season and females at all times. Plumage of head and upper parts blackish brown with tawny edges ; a light stripe over the eye ; the lower part of the cheeks and throat yellowish-white ; breast and flanks striated as in the breeding male.

Bill, in breeding males, bluish black, paler at the gape, in females and non-breeding males yellowish horn colour; iris brown; legs flesh colour.

Length 5.75; wing 2.75; tail 1.8; tarsus .75; bill from gape .65.

*Distribution*.—The Indian Striated Weaver-Bird is found throughout the Indian Empire; another sub-species extends south-east to Java. Its occurrence in Ceylon is distinctly local. It is abundant among the rush beds of the tanks and swamps of the Tangalla district, and I have found colonies in similar rush beds at one or two tanks in the Puttalam District. It probably occurs in various other suitable localities in the low-country.

*Habits*.—In Ceylon this species confines itself to the vicinity of rush beds in swamps and tanks. Like the last species, it occurs in flocks, which can be heard at some distance. It appears to feed on insects as well as on grass seeds. The breeding season is about February and March, and again in June. The nest is constructed like that of the last species, but the top is almost square, not tapering, being hung from the points of several bulrush leaves gathered together; the funnel, too, is shorter. The eggs resemble those of the Baya and are two or three in number. Average size .76 by .58.

### Sub-Family VIDUINAE

#### *Munias*

The *Viduinæ* are a fairly numerous group of small Finch-like birds, the largest of which seldom exceed 5 inches in length. They differ from the Weaver Birds in having an exceedingly minute first primary, and by not undergoing any change of plumage in spring. They are all more or less gregarious, except in the breeding season, and all build large globular nests of grass, often using fine grass stems with the flower heads still attached. The entrance is generally a round opening at one side of the ball. The eggs are invariably pure white, and the clutches are large, frequently consisting of six eggs, or even more. *Munias* feed on grains and small grass seeds. Five species are found wild in Ceylon. One of them belongs to the genus *Munia*, in which the tail is short and round, while the middle pair of feathers are narrow and pointed. The plumage in this genus is mainly black and chestnut. The other species are all included in the genus *Uroloncha*, in which the tail is longer, while the outer feathers are considerably shorter than those in the centre.

None of the Munias are known to migrate, but, since many species are frequently kept as cage birds, several exotic forms from time to time occur as escapes. Three such species have been recorded in the Island.

(1) *Munia oryzivora* (The Java Sparrow).—This species has the head black, with white cheeks and ear coverts; the rump and tail are also black; the remainder of the upper parts, with the wings, neck, and breast, are bluish gray; the abdomen, sides, and thighs are vinous, and the under tail coverts white.

This is a native of the Malay Peninsula and Archipelago, and is a familiar cage bird. It appears to be acclimatized near Madras, and in Legge's time it seems to have flourished temporarily round Colombo; it may still be seen, occasionally, on the Galle Face (*vide Legge*, p. 646).

(2). *Munia atricapilla* (The Chestnut-bellied Munia).—This species resembles *M. malacca*, but the lower breast and sides of the body are chestnut, not white. Its natural habitat is in India, Assam, and Burma. Its occurrence has been recorded by Layard at Galle and by Legge in Colombo (*vide Legge* under *M. rubronigra*, p. 652).

(3). *Amandava amandava* (The Indian Red Munia).—This bird belongs to a genus in which the middle tail feathers are broad and rounded, and the plumage of the two sexes differs. In the male the head, neck, breast, and upper parts are crimson; the rump, upper tail coverts, and part of the lower plumage are spotted with white; the wings are brown with white spots; the abdomen, vent, and tail largely black.

In the female the upper plumage and wings are mainly brown; the rump and upper tail coverts washed with crimson; the lower plumage is brownish, tinged with fulvous yellow on the abdomen.

It occurs all over India, also Siam, Cochin-China, and parts of Malaya. The only Ceylon records are by Legge (*vide Legge*, p. 662, under *Estrela amandava*). He found a small flock on the outskirts of Colombo in 1870, and again one or two birds at Galle in 1872. In both cases the occurrence in the vicinity of a large town is suspicious, but the birds may possibly have been storm-driven from India.

#### Key to Ceylon Viduinæ

A.—Tail rounded and short; head black, contrasting with the colour of the back. Genus *Munia*.

(1) Lower breast and sides of body white.

*M. malacca* (Black-headed Munia).

B'—Tail longer and more pointed; crown and nape much the same colour as back. Genus *Uroloncha*.

(a) Some white on rump, or upper tail coverts.



- (1) Rump white ; throat and breast black.  
*Uroloncha striata striata* (White-backed Munia).
- (2) Upper tail coverts and whole of lower parts white.  
*U. malabarica* (White-throated Munia).
- (b) No white on rump, or tail coverts ; lower parts chequered.
  - (1) Chin and throat blackish ; chequering includes the whole abdomen.  
*U. kelaarti* (Ceylon Munia).
  - (2) Chin and throat chestnut ; centre of abdomen not chequered.  
*U. punctulata punctulata* (Spotted Munia).

### 89. MUNIA MALACCA

#### The Black-headed Munia

*Wī-kurullā*, Sinhalese ; *nellu-kuruvi*. Tamil

*Loxia malacca* Linn. Syst. Nat. i. p. 306. (1766). (Malacca) ; *Munia malacca*, Legge p. 652 ; Oates & Blan. Vol. II. p. 182.

*Description*.—Whole head, neck, upper breast, the middle of the abdomen, vent, thighs, and under tail coverts deep black ; rest of lower plumage white ; back, scapulars, and wing coverts chestnut ; wing quills brown, edged with chestnut ; upper tail coverts shining maroon ; tail feathers brown, edged with glistening chestnut, which at times approaches the maroon hue of the tail coverts. In young birds the upper plumage, wings, and tail are rufous brown ; the under plumage pale buff. The adult plumage is acquired gradually by moult.

Bill pale lavender ; iris dark brown ; legs and feet lead blue.

Length 5 ; wing 2·2 ; tail 1·55 ; tarsus ·65 ; bill from gape ·45.

*Distribution*.—Rather local, and found chiefly in the east and south-east of the Island ; in low-country frequenting the long grass of swamps, in the hills the long *mana* grass of the patanas, and further east the grassy glades of the park country. In other parts of the country it appears to be local and scarce. It occurs over the southern half of India.

*Habits*.—As noted above, this Munia is found among long grass. It generally occurs in small parties, or at times larger flocks, and feeds on grass seeds, often doing some damage to crops. The breeding season appears to be from March to August in the low-country, and about May in the hills. The nest is of the usual type described in my remarks on the Sub-family. It is generally placed in a tuft of long grass, or fern, occasionally in a low bush. There are four to six pure white eggs. The shape is a slightly pointed oval. Average size ·66 by ·46.

## 90. UROLONCHA STRIATA STRIATA

## The White-backed Munia

*Wi-kurullā*, Sinhalese; *nellu-kuruvi*, Tamil.

*Loxia striata* Linn. Syst. Nat. i. p. 306. (1766) (L. of Bourbon); *Munia striata*, Legge p. 660; *Uroloncha striata*, Oates & Blan. Vol. II. p. 185.

*Description*.—Forehead and crown blackish with indistinct white shafts; upper plumage, ear coverts, and sides of neck dark brown, deepening on the tail coverts and wing coverts into blackish, each feather with a white shaft; a broad, white band across the lower back and rump; wing quills blackish brown; tail almost black; face, chin, throat, fore-neck, and breast deep black; abdomen and sides of body white; vent thighs, and under tail coverts blackish.

Young birds are more rufous brown above and the throat and breast are brown with paler shafts and margins.

Bill, upper mandible blackish, lower bluish; iris reddish brown; legs and feet bluish lead colour.

Length 4·5; wing 2; tail 1·75; tarsus ·55; bill from gape ·4.

*Distribution*.—Common over almost all the low-country. It ascends the hills up to about 2,500 feet; on the Uva patanas it is found up to about 4,000 feet. In India it occurs south of a line drawn from about Bombay to South-west Bengal.

*Habits*.—Not so gregarious as some species. It occurs in small parties, and frequents waste, scrubby land, clearings in the jungle, patches of grass in forests, &c. It visits paddy fields when the grain is in ear, and also levies considerable toll on kurakkan chenas. It breeds intermittently, chiefly during the north-east monsoon, but occasionally as late as August. The nest is a loose ball of grass of the usual type, placed in a bush, or the branches of a low tree from 3 to 10 feet from the ground. The situation chosen is generally rather a solitary spot, such as the edge of the forest at the head of a tank, or by a grassy roadside in the jungle. There are 4 to 6 eggs, pure white ovals, occasionally rather pointed. Average size ·60 by ·43.

## 91. UROLONCHA KELAARTI

## The Ceylon Munia

*Wi-kurullā*, Sinhalese; *nellu-kuruvi*, Tamil.

*Munia kelaarti* Blyth. Jerd. B. of I. ii. p. 356. (1863) (Ceylon); Legge p. 650; *Uroloncha kelaarti*, Oates & Blan. Vol. II. p. 187.

*Description*.—Upper plumage chocolate brown with pale shafts, the crown rather darker; rump and upper tail coverts almost black with white cross-shaped spots, the longer tail coverts with shining yellow tips; wing quills blackish brown; tail almost black; sides of neck and of breast

pinkish brown; cheeks, lores, chin, throat, and fore-neck brownish black; lower plumage from breast irregularly chequered white and black.

Young birds are dark brown above; they lack the pale shafts and the white marks on the rump; the whole of the lower parts, including the throat and fore-neck, are mingled brown and pale buff.

Bill blackish, base of lower mandible bluish; iris sepia brown; legs and feet lead colour, at times with a greenish tinge.

Length 4·7; wing 2·1; tail 1·7; tarsus ·55; bill from gape ·45.

*Distribution*.—Peculiar to Ceylon, and confined to the hills, rarely descending as low as 2,000 feet. It is commonest on the central ranges, from the Peak to the Nuwara Eliya plateau.

*Habits*.—Less gregarious than most Munias, only collecting in flocks to roost. The flight, too, is more rapid. It is found deep in hill forests as well as in gardens, or on estates. Like the other species it feeds on seeds, and like the sparrow it will hunt for food on dunghills, rubbish heaps, or roadsides. The breeding season is from May to December. It frequently places its nest among the bushy creepers growing on the walls and verandahs of up-country bungalows, but it also builds in forest trees, or bushes. The nest is of the usual globular type. The four or five eggs are slightly pointed ovals of pure white, and measure about ·61 by ·45.

## 92. UROLONCHA MALABARICA

### The White-throated Munia

*Wi-kurullā*, Sinhalese; *nellu-kuruvi*, Tamil.

*Loxia malabarica* Linn. Syst. Nat. i. p. 305 (1766) (India, Malabar); *Munia malabarica*, Legge. p. 662; *Uroloncha malabarica*, Oates & Blan. Vol. II. p. 188.

*Description*.—Upper plumage, wing coverts, and inner quills pale earth brown, darker on the crown; primary quills rather darker, the outer webs almost black; upper tail coverts white, the outer webs of the outside coverts black; tail blackish; sides of head and all the lower parts pale buffy white, the lower flanks with a rusty tinge.

Bill, upper mandible partly black, partly horn colour, lower mandible black; iris brown; legs and feet mauve, or lilac.

Length 4·75; wing 2·1; tarsus ·55; bill from gape ·4.

*Distribution*.—In Ceylon this Munia is found only in the dry maritime districts of the north and south-east. It is, however, widely distributed over the whole of India proper and ranges into Afghanistan.

*Habits*.—Found in dry, sandy pastures round the lagoons of the north and south-east coasts, in dry paddy fields, &c. It goes about in flocks, frequently in company with the Finch Lark *P. grisea*. It feeds

entirely on the ground, mainly on small grass seeds, but occasionally visits fields of ripening paddy. The breeding season is from December to March. The nest is generally the usual globular mass of grass, with the opening at one side, but at times it is only partially domed, and in some cases the dome is altogether wanting.

The average clutch is probably from four to six eggs, but in India as many as fifteen have been found in one nest, probably the product of several birds. They are rather broad, glossless white ovals. Average size .62 by .45.

### 93. UROLONCHA PUNCTULATA PUNCTULATA

#### The Spotted Munia

*Wi-kurullā*, Sinhalese ; *nellu-kuruvi*, Tamil.

*Loxia punctulata* Linn. Syst. Nat. i. p. 302. (1766) (Asia, Calcutta);

*Munia punctulata*. Legge p. 656 ; *Uroloncha punctulata*, Oates & Blan. Vol. II. p. 189.

*Description*.—Upper plumage dull chocolate brown with paler shafts ; rump darker with yellowish bars and white streaks ; upper tail coverts glistening yellowish brown ; tail feathers brown edged with the hue of the tail coverts ; wing quills chocolate brown with chestnut edges ; sides of head chin, and throat rich chestnut ; lower parts white, all the feathers, except on the centre of the abdomen, with conspicuous wavy edges and cross-bars of blackish brown ; lower tail coverts tawny coloured with, at times, some black marks.

Young birds are uniform, rufous brown above and pale buff below.

Bill bluish black ; iris light red ; legs and feet black, or lead colour.

Length 5 ; wing 2.2 ; tail 1.75 ; tarsus .6 ; bill from gape .45.

*Distribution*.—Our commonest species : abundant all over the low-country and in the hills to about 2,500 feet, or in patana districts to about 4 000 feet. It occurs throughout India, except in the north-west.

*Habits*.—A gregarious species occurring in large flocks in paddy fields grass lands, village gardens, and compounds. It is seldom found far from cultivation, except in patana country. It commits considerable depredations on paddy crops. The birds roost in colonies in low trees and bushes. Breeding appears to be carried on almost throughout the year. The nest is of the usual type and is placed in a low tree, generally a lime, or orange tree, or some other thorny species, in an untidy native garden. There are often several nests in the same tree. There are usually four to six white eggs, oval in shape. Average size .66 by .45.

## Family FRINGILLIDAE

## Sub-family FRINGILLINAE

*Finches*

The Finches agree with the *Plocidae* in having a strong conical bill with the nostrils pierced close to the line of the forehead and near the ridge of the bill. The edges of the mandibles are smooth, the rictal bristles are few and short, and there are twelve tail feathers. The chief outward structural point of difference is that there are only nine primaries in the wing, the first being nearly as long as the second. In the Sub-family *Fringillinae* the bill is moderate in size, and the cutting edges of the mandibles are in contact for the whole length of the bill. The wings and tail are moderate in length, the tarsi and feet fairly well developed. There is one yearly moult, in autumn. The two sexes generally differ in their plumage and young birds resemble adult females.

The Finches are a very large group of birds, found all over the world, except in Australia, but chiefly in cool or temperate regions. They are very poorly represented in Ceylon, the only common species being the ubiquitous House-Sparrow, while one other species of a closely allied genus has been recorded as a straggler.

*Key to Ceylon Fringillinae*

A.—A yellow patch on the throat ; bill comparatively long and slender.

*Gymnorhis xanthosterna xanthosterna* (Yellow-throated Sparrow).

B.—No yellow patch on throat ; bill short and stout.

*Passer domesticus indicus* (House Sparrow).

**94. GYMNORHIS XANTHOSTERNA XANTHOSTERNA****The Yellow-throated Sparrow**

Vernacular names not recorded.

*Fringilla xanthosterna* Bonap. Consp. Av. i. p. 512. (1850) (Bengal);  
*Passer flavicollis*, Legge. p. 605; *Gymnorhis flavicollis*, Oates & Blan.  
Vol. II. p. 235.

*Description*.—Male : Upper plumage from forehead to tail coverts sandy brown ; lesser wing coverts cinnamon red ; median coverts brown with white tips ; greater coverts and secondary quills brown with buff margins and tips ; primaries darker brown with narrow buff margins ; primary coverts black ; chin dull white ; a rich yellow spot on the throat ; the sides of the head and neck and the breast pale ashy brown ; rest of lower parts ashy white, darker on the flanks.

In females the throat spot is paler yellow and the shoulder patch is rufous brown, not cinnamon red.

Many members of the Family are migratory, and found over a wide expanse of the globe; others are resident, and in some cases confined to a small area. All of the species authentically recorded from Ceylon belong to the true Swallows—genus *Hirundo*—in which the tarsus and toes are bare, and the greater part of the upper plumage is of a highly glossy blue black.

The Martins have either the tarsus and toes feathered—genus *Delichon*.—or the upper plumage brown and without gloss—*Riparia* and *Ptynoprogne*. Legge, records that two competent ornithologists, Messrs. Bligh & Parker, have observed, without being able to secure, a species of Martin with a darkish under surface (*vide* Legge, pp. 598 and 1217). If specimens are ever obtained, they may possibly turn out to be a species of Crag Martin—*Ptynoprogne*—either *P. rupestris* or *P. concolor*. The former species has a wide range over the Old World, and the latter is found over a great part of India proper. They might, however, possibly be *Delichon urbana*, with a feathered foot. This last species also is found over a wide extent of Europe, Africa, and Asia and has been recorded as far south as the Nilgiris and Travancore.

Four forms of *Hirundo* occur in the Island. One of these is a common migrant, one a chance visitor; the other two are resident, and one of them is peculiar to Ceylon.

#### Key to Ceylon Hirundinidae

A.—Rump same colour as the back.

- (1) A dark glossy band across the chest. *Hirundo rustica gutturalis* (The Eastern Swallow).
- (2) No dark band across the chest.  
*H. rustica javanica* (Nilgiri House Swallow).

B.—Rump chestnut, contrasting with the dark back.

- (1) Lower plumage pale rufous, much paler than the ear coverts.  
*H. daurica erythropygia* (Syke's Striated Swallow).
- (2) Lower plumage chestnut of same shade as the ear coverts.  
*H. daurica hypertyhra* (Ceylon Swallow).

#### 96. HIRUNDO RUSTICA GUTTURALIS

##### The Eastern Swallow

*Wéhi-likiniyā*, Sinhalese; *tām-pādi, talav-illālha-kuruvi, adaikalān-kuruvi*, Tamil.

*Hirundo gutturalis* Scop.-del. Flor. et. Faun. Insubr. ii. p. 96. (1786) (New Guinea); *H. rustica*, Legge p. 587; Oates & Blan. Vol. II. p. 277.

*Description*.—Forehead, chin, and throat chestnut; lores black; upper plumage, including wing coverts, glossy purplish blue; wing quills and tail black with a greenish lustre; all tail feathers, except the middle pair, with a white patch on the inner web; sides of the head and neck and a broad band across the breast glossy black; this band is more or less incomplete in the centre, where it is encroached on by the chestnut of the throat; remainder of lower parts white, tinged with rufous on the sides of the breast, the vent and lower tail-coverts.

In females the lower parts are almost pure white. The sub-species described above breeds throughout the Himalayas and mountains of Burma, and merges westwards into *H. rustica rustica*—the English Swallow—which has the dark pectoral band complete, is rather more rufous on the under parts and slightly larger. Many of the birds which visit us are more or less intermediate between these two sub-species.

Yearling birds, of which our visitors largely consist, on their arrival have the top of the head brownish, the forehead grayish, the throat rufescent white, turning in patches to chestnut, and the pectoral band brown. The long, outer tail feathers are not fully grown. They assume the adult plumage before leaving in spring.

Bill, legs, and feet black; iris dark brown.

Length up to 7·5; wing 4·6; tail up to 4; tarsus 4; bill from gape 57. Females slightly smaller and with shorter tails.

*Distribution*.—As noted above, the Eastern Swallow breeds in the Himalayas and extends eastwards to E. Asia, wintering in the South of its range. This Swallow is found during the N. E. Monsoon all over the Island, but is rare at high elevations.

*Habits*.—The young birds appear to come first, and arrive, generally via the north of the Island, about the middle of September. The old birds come a little later. All leave about the middle of April. Both at their coming and going they congregate in large flocks, which seem to find telegraph wires their most convenient perch. They scatter during their stay and hawk far and wide after flying insects.

## 97. HIRUNDO RUSTICA JAVANICA

### The Nilgiri House-Swallow

*Wēhi-ikiniyā*, Sinhalese; *tām-pādi*, *adaikalān-kuruvi*, *talai-illātha-kuruvi*, Tamil.

*Hirundo javanica* Sparrm. Mus. Carls. IV. pl. 100. (1789) (Java); Legge p. 597; Oates & Blan. Vol. II. p. 279.

*Description*.—A broad forehead, chin, throat, upper breast, ear coverts, and cheeks rusty red; lores blackish; upper plumage and lesser wing coverts black with a greenish blue gloss; wings and tail rusty

black ; all the tail feathers, except the middle pair, with a white spot on the inner webs ; lower plumage ashy brown, paling on the centre of the abdomen ; under tail coverts blackish, tipped with white.

In young birds the upper plumage is without gloss, and some of the secondaries have rufous margins ; the lower parts are paler.

Bill black ; iris dark brown ; legs and feet brown.

Length 5 ; wing 4·05 ; tail 1·8 ; tarsus ·35 ; bill from gape ·63 ; tail only slightly forked.

*Distribution*.—Resident in the hills, where it is common at the higher elevations, but seldom descends as low as 2,000 feet. It is found in the South Indian hills as far north as the Nilgiris, also in the Andamans, Tenasserim, and Malaya, including the Archipelago.

*Habits*.—The most familiar Swallow in the higher hills. The flight is easy, but not very swift. The birds often have a regular beat, and are fond of the steep-sided railway cuttings through cabook (laterite), which are so common on the up-country line. They are fearless of man, and frequently build their nests in the eaves of verandahs, or even inside rooms. They are, however, equally ready to breed on little ledges on the face of rocks, or in cabook cuttings, and I have found the nest in the entrance of a railway tunnel. The breeding season is from April to June, and again in September. The nest is a little, half cup of mud, firmly glued to the perpendicular surface against which it is built, and lined with feathers, or occasionally small scraps of rag, &c. The two or three eggs are rather broad ovals, slightly pointed at the smaller end. The ground colour is pinkish white, with dull purple and reddish brown markings, chiefly at the larger end. Average size ·66 by ·50.

## 98. *HIRUNDO DAURICA ERYTHROPYGIA*

### Sykes' Striated Swallow

*Wéhi-lîhinyâ*, Sinhalese ; *iâm-pâdi*, *adaikalân-kuruvi*, *talai-illâtha-kuruvi*, Tamil.

*Hirundo erythropgyia* Sykes, P. Z. S. 1832. p. 83. (Poona) ; Legge p. 594 ; Oates & Blan. Vol II. p. 283.

*Description*.—Upper plumage down to the lower back, with the lesser and median wing coverts glossy steel blue ; rump and shorter upper tail coverts chestnut ; longer tail coverts glossy black ; remainder of wing and the tail dark brown, with a blue gloss on the outer webs ; lores brown ; the feathers under the eye mixed brown and rufous ; ear coverts and a partial collar on the hind-neck chestnut ; sides of the neck glossy blue ; the whole lower plumage pale rufous with fine, brown shaft-streaks ; under tail coverts tipped with black.

Bill and legs black ; iris brown.



Length 6·5 ; wing 4·3 ; tail 3·2 ; tarsus ·5 ; bill from gape ·45.

*Distribution*.—The Indian race of this Swallow is found over the greater part of the plains of India as far south as the Nilgiris. It is the merest straggler to Ceylon, having been recorded once from the Jaffna peninsula and once from the Uva hills near Haputale.

*Habits*.—In India the species is found round mosques and other buildings, and also in the vicinity of walls and bridges. The flight is comparatively slow.

### 99. HIRUNDO DAURICA HYPERYTHRA

The Ceylon Swallow (Pl. V. Fig. 1.)

*Wēhi-lihiniyā*, Sinhalese ; *tām-pōdi*, *adaikalān-kuruvi*, *talai-illātha-kuruvi*, Tamil.

*Hirundo hyperythra* Layard, Blyth J. A. S. B. xviii. p. 814. (1849) (Ceylon) ; Legge p. 592 ; Oates & Blan. Vol II. ; p. 284.

*Description*.—Whole upper plumage, including wings and tail, glossy blue black, except the rump and shorter upper tail coverts, which are dark chestnut ; whole under surface and sides of neck chestnut with narrow, indistinct, brown shaft-streaks, except on the vent and lower tail coverts ; the latter have broad, black tips.

In young birds the chestnut parts are paler, the streaks on the throat and fore-neck are broader, and the breast is mottled with blackish brown.

Bill blackish brown ; iris sepia brown ; legs and feet vinous brown.

Length 6·6 ; wing 4·75 ; tail 3·2 ; tarsus ·55 ; bill from gape ·6.

*Distribution*.—A resident sub-species peculiar to Ceylon. It is found all over the low-country and in the central hills up to about 3,000 feet. On the Uva patanas I have seen it at an elevation of about 4,000 feet. In the northern forest tract it is widely distributed, but not very numerous ; it is more abundant in the south, especially round Galle, and is occasionally seen in Colombo.

*Habits*.—May be seen hawking for insects over paddy fields, tanks, marshes, and patanas, as well as round houses in villages and the vicinity of towns. The flight is lower and heavier than that of the Eastern Swallow, but it is often found in company with that species in the low-country and with *H. rustica javanica* in the hills. The breeding season is from April to June. The nest is a solid, retort-shaped structure of mud, glued on to the under surface of a verandah roof, the arch of a bridge, or culvert, or the roof of a rock cave. The interior is lined with a felted layer of feathers. The two or three eggs are elongated ovals of pure white without any gloss. Two eggs in my collection measure ·95 by ·57.

## Family MOTACILLIDAE

*Wagtails and Pipits*

The Wagtails and Pipits form a Family of rather small, slim-built birds, with straight, slender bills, slender legs and feet, and fairly long tails. The wing has only nine primaries, the first being nearly as long as the second; the inner secondaries—or tertiaries—are elongated, and in the closed wing reach almost, if not quite, to the tip of the longest primary. The rectal bristles are fairly well developed. The Family, which is found chiefly in the Old World, especially in the north of Europe and Asia, divides naturally into two groups: Wagtails and Pipits. The Wagtails are most daintily formed birds with longish tails, which they vibrate perpetually while standing, or running. They frequent grassy lands, or the banks of streams and tanks, running over the ground in search of insects. Most of the species are migratory, and none of the five forms found in Ceylon are resident; two are the merest stragglers to the Island. Four of these forms belong to the genus *Motacilla*, in which the sexes are alike, or almost so. They undergo, however, striking seasonal changes in plumage, as well as various metamorphoses between the nestling and adult stages. In consequence birds of the same form may be seen at the same time and place in very different phases of plumage. The characteristics given in the key, however, will always serve to distinguish our four Ceylon forms. The remaining Wagtail is a forest bird, which does not undergo such continual changes.

In the Pipits the family characteristics are not so emphasized. With their soberly streaked upper plumage and shorter tails they resemble the Larks.

Three Pipits are found in Ceylon, all being sub-species of *Anthus richardi*. Two of these forms are migratory, the third is a common resident. The sexes are alike. Immature birds are very spotted beneath, the spots becoming reduced in size and number each year of the bird's life. There is little difference between the summer and winter plumage, but the colours are brightest just after the moult, in autumn.

*Key to Ceylon Motacillidae*

## I.—Upper plumage not streaked. Wagtails.

A.—Central pair of tail feathers of same colour and as long as the adjoining pair. Genus *Motacilla*.

- (a) Rare stragglers, plumage white, black, and gray; throat and fore-neck black, or with a sharply defined black patch; hind claw curved and shorter than its toe.

- (1) Ear coverts and sides of neck white.  
*Motacilla alba dukhunensis* (Indian White Wagtail).
- (2) Ear coverts and sides of neck black.  
*M. alba maderaspatensis* (Large Pied Wagtail).
- (b) Adult plumage largely greenish above, yellow beneath; young birds may be grayish above and whitish beneath, but have no black patch on fore-neck.
  - (1) Tail 3·5, or more, and three white feathers on each side; hind claw about ·25 and shorter than its toe.  
*M. cinerea melanope* (Gray Wagtail).
  - (2) Tail about 3, and with only two white feathers on each side; hind claw about ·45 and longer than its toe.  
*M. flava thunbergi* (Gray-headed Wagtail).

B.—Central pair of tail feathers shorter than the adjoining pair and of a different colour.

- (a) Wing coverts and breast broadly barred black and white.  
*Dendronothus indicus* (Forest Wagtail).

II.—Upper plumage streaked; the two outermost feathers on each side of tail largely white. Pipits.

- (a) Length about 7·5; tail about 3·2; hind claw about ·75 and not much curved.  
*Anthus richardi richardi* (Richard's Pipit).
- (b) Length about 7; tail about 2·9; hind claw about ·5 and considerably curved.  
*A. richardi striolatus* (Blyth's Pipit).
- (c) Length about 6·5; tail 2·4; hind claw about ·5, and not greatly curved.  
*A. richardi rufulus* (Indian Pipit).

# 100. MOTACILLA ALBA DUKHUNENSIS

## The Indian White Wagtail

Vernacular names not recorded.

*Motacilla dukhunensis* Sykes. P. Z. S. 1832. p. 91. (Deccan); not in Legge; *M. alba*, Oates & Blan. Vol II. p. 287.

*Description*.—Summer: Forehead, front of crown, sides of head, and of neck clear white; back of crown, nape, hind-neck, chin, throat,

fore-neck, and breast deep black; upper plumage from the nape, with the lesser wing coverts gray; upper tail coverts black with white margins on the outer webs; rest of wing coverts and the inner quills blackish with broad, white margins; rest of quills black with narrow, white margins; two outermost pairs of tail feathers almost entirely white, the rest black; lower parts from breast white.

In winter the chin, throat, and fore-neck become white and the black of the breast is confined to a narrow, crescent-shaped patch, the horns of the crescent extending up the sides of the fore-neck.

Young birds in their first autumn resemble adults in winter plumage, but the back of the crown, the nape, and hind-neck are gray, like the back, while the white parts of the head are tinged with primrose yellow.

Bill black, bluish beneath; iris brown; legs, feet, and claws blackish brown.

Length about 7.75; wing 3.5; tail 3.6; tarsus .85; bill from gape .75.

*Distribution*.—A recent addition to our list. At the end of November, 1917, I saw several Wagtails of a strange species on the maidan at Puttalam, and secured one which proved to be a young male of this form. The other birds stayed for some weeks, but left at the end of January. The Indian White Wagtail breeds from Western Siberia to Turkestan and winters in India and Burma. It seldom, however, penetrates as far as the south of India, though possibly it may occasionally visit the Island, unnoticed, among other Wagtails.

*Habits*.—The birds I saw frequented the grassy flats round Puttalam resthouse along with numbers of the Gray-headed Wagtail. They might be looked for on open, grassy spaces, wherever there are troops of the last mentioned species.

## 101. MOTACILLA ALBA MADERASPATENSIS

### The Large Pied Wagtail

Vernacular names not recorded.

*Motacilla maderaspatensis* Gmel. Syst. Nat. i. p. 169. (1789) (India); Legge p. 610; Oates & Blan. Vol II. p. 293.

*Description*.—Male: A broad, white eyebrow from the nostrils to the nape; head, neck all round, and upper plumage to the tail coverts glossy black; lesser and median wing coverts less glossy black; greater coverts almost entirely white; quills black, bordered with white; two outer pairs of tail feathers almost entirely white, the remainder black with narrow, white edges; lower parts from breast downwards white, the flanks grayish.

Females are smaller, and their upper plumage is tinged with gray.

Young birds are grayish brown where the adults are black ; the white eyebrow does not extend forward of the eye ; there is some white on the chin and throat, and the white parts are tinged with buff.

Bill, legs, and feet black ; iris dark brown.

Length about 8·75 ; wing 3·9 ; tail 4·1 ; tarsus 1 ; bill from gape ·8.

*Distribution*.—A very rare straggler to Ceylon, having been recorded once from one of the islands of the Northern Province. In India it is resident, and is found over practically the whole of India proper.

*Habits*.—A true Water-Wagtail, which is rarely found far from water. It may be looked for near rivers, tanks, &c. It is very active in all its movements. It feeds on insects, and will even tackle dragon-flies.

## 102. MOTACILLA CINEREA MELANOPE

### The Gray Wagtail (Pl. VI. Fig 2.)

Vernacular names not recorded.

*Motacilla melanope* Pall. Reiss. Russ. Reich iii. p. 396. (1766) (Dauria) ; Legge. p. 610 ; Oates & Blan. Vol. II. p. 293.

*Description*.—Male in winter : Top and sides of head, hind-neck, back, scapulars, and lesser wing coverts ashy gray with a brownish green tinge ; rump and upper tail coverts yellowish green ; outermost pair of tail feathers entirely white, next two pairs with some black on the basal portion of the outer webs ; three middle pairs black with greenish margins ; medium and greater wing coverts and quills dark brown with white margins, which disappear on the outer primaries ; a narrow, dull white eyebrow from the lores to the ear coverts ; chin, throat, and fore-neck white ; rest of lower parts bright yellow, deepest on the vent and under tail coverts.

In spring the lores change to dark brown, the white eyebrow becomes broader and clearer, and the ear coverts dark slate colour ; the chin, throat, and fore-neck become black with small, white edges to the feathers, and there is a broad, white moustache stripe down the sides of the neck. Our birds appear to leave before this change is much advanced.

Females in winter resemble males ; in summer the dark throat patch is represented by a row of dark brown spots on each side of the throat and neck ; the lower parts are less bright yellow.

Young birds on their arrival resemble adults in winter, but the chin and throat are tinged with yellow, and the rest of the lower parts are less bright, at times almost white.

Bill horn colour, paler at the base of the lower mandible ; iris brown ; legs and feet flesh colour.

Length about 7·5 ; wing 3·15 ; tail 3·7 ; tarsus ·75 ; bill from gape ·7 ; hind claw, measured straight from base to tip ·25.

*Distribution*.—A regular migrant, arriving about the middle of September, and staying near the coast for a few days after its arrival. The birds then move on, some to the interior of the northern forest tract, but the majority to the hills. They leave again about the end of March.

The Gray Wagtail has a wide range, breeding from the Urals to Kamschatka and on the Himalayas, and wintering in Southern Asia.

*Habits*.—May occasionally be seen in the sandy beds of rivers in the northern forest tract, but in the hills it is a very familiar species along the streams and water-courses. It is fond of perching on the roofs of houses, on tree stumps and bushes, as well as on rocks in the stream bed. When perched, or running it perpetually balances its tail. The flight is undulating, but swift; the note is a cheerful little whistle. It is by no means shy.

### 103. MOTACILLA FLAVA THUNBERGI

#### The Gray-headed Wagtail

Vernacular names not recorded.

*Motacilla thunbergi* Billberg, Syn. Faun. Scan. p. 50. (1828) (Lapland); *M. borealis*, Legge p. 617; Oates & Blan. Vol. II. p. 294.

*Description*.—Male on arrival in autumn: From forehead to hind-neck slaty gray; back, scapulars, and rump dull olive green; upper tail coverts dark brown edged with olive green; four middle pairs of tail feathers black, with narrow, yellowish green edges; two outer pairs mainly white; wing coverts and quills blackish brown with pale margins, often tinged with yellowish green; lores and cheeks dark brown; usually an indistinct, whitish eyebrow; lower parts yellow, the sides of the chest brown; at times the centre of the breast is mottled with white and blackish brown.

During the winter the upper parts become worn and browner, and the black bases of the breast feathers become conspicuous.

In summer plumage, to which some birds change before leaving, the head from forehead to nape is dark bluish gray; the upper parts become greener, the pale borders of the wing feathers more yellow; the lores, cheeks, and ear coverts are black, and the whole lower plumage bright yellow.

Females in winter resemble males; in summer both the upper and lower plumage is duller; the lores, cheeks, and ear coverts are brown, and the black bases of the breast feathers more conspicuous.

Birds in their first autumn are rather different; the upper parts are grayish brown, which shades into gray blue on the rump; the upper tail coverts are black, edged with gray; the tail and wings as in the adult, but the edges of the wing feathers are white; there is a broad whitish

eyebrow; lores and ear coverts grayish brown; lower parts white; the breast darker and at times mottled with brown.

Bill blackish brown, paler at the base of the lower mandible; iris brown; legs and feet dark horn colour.

Length about 6·75; wing 3·2; tail 3·1; tarsus ·9; bill from gape ·7; hind claw, measured straight ·45.

*Distribution*.—The Gray-headed Wagtail, divided into several geographical races, is found over the greater part of the Old World, breeding in the north and wintering in the south. The present subspecies breeds in Northern Europe and Western Siberia, wintering in Africa and in Southern Asia as far east as the Malay Peninsula. It is one of our commonest Passerine migrants, arriving about the middle of September. It is abundant during the north-east monsoon all over the low-country, but is less numerous in the south-east of the Island than in the north. In the hills it is not nearly so common as the last species. It leaves for the most part in April.

*Habits*.—On its first arrival this Wagtail may be seen in swarms on grassy flats near the sea in the west and north of the Island. A number of birds remain in these haunts. Others spread inland to newly ploughed paddy fields, grassy land round tanks, &c. They are restless birds, continually running about, or taking short flights in their hunt for flies and other small insects. They roost at night in large colonies in the long grass of swamps, &c.

#### 104. DENDRONOTHUS INDICUS

##### The Forest Wagtail

Vernacular names not recorded.

*Motacilla indica* Gmel. Syst. Nat. i. p. 692. (1789) (India); *Limoniidromus indicus*, Legge p. 614; Oates & Blan. Vol. II. p. 300.

*Description*.—Upper plumage, including ear coverts and lesser wing coverts, dull olive green; tail coverts blackish brown; median and greater wing coverts black with broad, whitish tips, which form two conspicuous wing bars; wing quills brown, the innermost secondaries with broad, olive brown tips, remaining quills with edges of yellowish white on the central portion of the outer webs; most of the primaries also with a patch of the same colour near the base; middle pair of tail feathers the same hue as the back; next three pairs blackish brown, the next pair white with broad, brown bases, the outermost pair almost entirely white; cheeks, chin, throat, and lower plumage white with a yellow tinge on the chest, which is crossed by two broad, black bands, the lower band being incomplete in the middle.

Bill, upper mandible dark brown, lower flesh colour; iris olive brown; legs and feet flesh colour.

Length 6·5; wing 3·1; tail 2·8; tarsus ·85; bill from gape ·75.

*Distribution*.—A migrant, breeding in Northern China and Eastern Siberia, and wintering from India eastwards to Southern China, but rare in most parts of India. In Ceylon it is almost confined to the northern forest tract, but may occasionally be met with elsewhere.

*Habits*.—Generally found by the grassy sides of roads running through forest. It is, for instance, fairly numerous from October to March on the sides of the roads leading from Puttalam to Anuradhapura and Kurunegala. The birds are generally in pairs, which keep flying in front of one in little flights of about 100 yards, perching on low branches, and moving on as one catches up with them. They will continue in this manner for some distance before they double back. When hunting for food they run about on the ground and wag their tails from side to side, instead of up and down as other Wagtails do.

#### 105. ANTHUS RICHARDI RICHARDI

##### Richard's Pipit

*Gomarittā*. Sinbalese; *nethai-kāli*, Tamil.

*A. richardi* Vieill. Nouv. Dict. d'Hist. Nat. xxvi. p. 491. (1818) (France); *Corydalla richardi*, Legge, p. 621; *A. richardi*. Oates & Blan. Vol. II. p. 307.

*Description*.—Upper plumage fulvous brown, the feathers of the head and back with dark brown centres; wings dark brown with brownish buff margins; outermost tail feathers almost entirely white, the next pair brown at the base, along the shaft, and on the marginal portions of the inner web, the rest dark brown with paler edges; a broad, buff stripe above the eye; lower plumage brownish buff; the sides of the throat, the fore-neck, and breast streaked with dark brown.

Bill brown, paler beneath; iris brown; legs flesh colour.

Dimensions a little variable; length about 7·7; wing 3·75; tail about 3·2; tarsus 1·2; bill from gape ·8; hind claw about ·75, and not greatly curved.

*Distribution*.—This, the largest race of the species, breeds in Central Asia and Siberia. In winter it is found over a wide extent from the British Isles and France to China; it occurs at this season over the eastern half of India proper and the whole of Burma. In Ceylon it arrives about the beginning of October, and some birds linger till May. It spreads fairly widely throughout the low-country, but is found chiefly in the maritime districts. It occurs on the hills on some of the lower patanas, but does not appear to ascend to any great elevation. In Colombo



it is not much seen before February, apparently visiting that part of Ceylon only on its return journey.

*Habits*.—Usually met with on pastures and grassy flats, especially near the sea, in company with its smaller resident relative *A. r. rufulus*. It may sometimes be found generally just after its arrival, or before its departure, in the longer grass of marshy lands. It is a swift runner, and has a rapid undulating flight.

#### 106. ANTHUS RICHARDI STRIOLATUS

##### Blyth's Pipit

Gomarittā, Sinhalese; *nethai-kāli*, Tamil.

*Anthus striolatus* Blyth, J. A. S. B. xvi. p. 435. (1847) (Darjiling); *Corydalla striolata*, Legge p. 628; *A. striolatus*, Oates & Blan. Vol. II. p. 308.

*Description*.—In plumage it resembles *A. r. richardi*, but is rather smaller; the tarsus and feet are shorter and the hind claw is considerably shorter and more curved.

Length about 7; wing 3·5; tail 2·9; tarsus 1; bill from gape ·75; hind claw ·5; and considerably curved.

*Distribution*.—Breeds in Central Asia and on the Khasia and Shan hills and winters throughout the Indian Empire. Not very much is known of its distribution in Ceylon, but it probably escapes notice owing to its resemblance to Richard's Pipit. The only authentic record of its occurrence in the Island is by Legge, who found it south of Trincomalee near the Virugal-oya.

*Habits*.—Resemble those of Richard's Pipit. It may be looked for on pasture lands near the seas. It runs about actively, with sudden halts, and holds itself very erect. According to Brookes, it rises with a loud discordant note.

#### 107. ANTHUS RICHARDI RUFULUS

##### The Indian Pipit (Pl. VI. Fig. 1.)

Gomarittā, Sinhalese; *nethai-kāli*, Tamil.

*A. rufulus* Vieill. Nouv. Diet d' Hist. Nat. xxvi. p. 494. (1818) (Bengal); *Corydalla rufula*, Legge p. 625; *A. rufulus*, Oates & Blan. Vol. II. p. 308.

*Description*.—A much smaller edition of *A. richardi richardi*, but the tone of the upper plumage is grayer and the lower parts generally whiter. The bill is proportionately larger.

Dimensions a little variable. Length about 6·5; wing 3·15; tail 2·4; tarsus 1; bill from gape ·75; hind claw ·5.

*Distribution*.—A resident form, found almost throughout the Indian Empire. It occurs abundantly throughout the whole Island, except at the very highest elevations such as the Horton Plains, where it is scarce.

*Habits*.—May be met with everywhere, on grassy flats near the sea, pastures, dry paddy fields, and open patanas. It is very tame and fearless, and runs about actively through the heat of the day. The flight is swift and undulating. It breeds during the dry weather from April to July. The nest is a small cup of dry grass and grass roots, well concealed in a slight depression under the shelter of a tussock of grass. The lining is of finer material than the outside of the nest. The two or three eggs are almost oval in shape. The ground colour is whitish, or at times greenish, generally fairly thickly spotted with dull brown and occasionally fainter markings of dingy purple. I have two clutches which are much darker and with brown, streaky markings covering the greater part of the surface. Average size of a fair Ceylon series 80 by 60.

## Family ALAUDIDAE

### *Larks*

The typical Larks closely resemble the Pipits, having the same soberly streaked plumage and long inner secondaries. They are, however, slightly plumper in form, the bill is not quite so slender, and the tail a little shorter, while unlike the Pipits they soar, and sing while soaring. They are also distinguished from them and from all other Indian *Passeres* by the transversely scutellated hinder aspect of the tarsus. In all the other Families the hinder aspect of the tarsus is covered by two long "laminae" or thin scales, which run, one on each side of the back edge of the tarsus, from the toes to the tarsal joint. In the Larks this covering consists of several scales on each side, which are set transversely and overlap.

All the Ceylon forms have ten primaries, the first being always small, and in one form microscopic. In some outside genera the first primary is altogether wanting. The wing, as a rule, is somewhat pointed, the head is often crested, but no Ceylon species has a perceptible crest. The shape of the bill varies considerably in the different genera, but the edges of the mandibles are smooth, except for a slight notch in the upper one. The rictal bristles are well developed.

Larks are found all over the Old World, but only one genus occurs in America and they are unknown in Australia. They are somewhat gregarious, generally frequenting cultivated, or open grass lands, while many are desert loving species. Three forms, each belonging to a different genus, occur in Ceylon. The main generic distinctions are given in the following key.

*Key to Ceylon Alaudidae*

A.—Sexes similar ; bill moderate ; length about 6.

- (1) First primary exceedingly minute ; nostrils concealed by plumelets ; wing somewhat pointed ; outside tail feather almost entirely white, the next with a whitish outer web and tip ; hind claw long and straight.

*Alauda gulgula australis* (Small Nilgiri Sky Lark).

- (2) First primary nearly half length of second ; nostrils exposed ; wing round ; outside tail feather brown with a rufous white border on the outer web ; hind claw long and curved.

*Mirafrassa assamica affinis* (Madras Bush Lark).

B.—Sexes dissimilar ; bill short and deep ; length about 5 ; nostrils covered with plumelets ; tarsus short.

*Pyrhulauda grisea grisea* (Ashy-crowned Finch Lark).

108. ALAUDA GULGULA AUSTRALIS

The Small Nilgiri Skylark

*Gomarittā*, Sinhalese ; *vānam-pādi*, *pullu*, Tamil.

*Alauda australis* Brookes, Str. Feath. i. p. 486. (1873) (Ootacamund) ;  
*A. gulgula*, Legge. pp. 630. 1217. 1225 ; Oates & Blan. Vol II. p. 326.

*Description*.—Feathers of upper plumage rich, dark brown broadly edged with brownish buff ; on the hind-neck and upper back the margins are very broad, the brown being reduced to a wide shaft-stripe ; wing coverts slightly paler brown and with whitish tips ; wing quills brown with fulvous margins, the outer webs tinged with rufous at the base ; the outside tail feather almost entirely buffy white ; the next with the outer web and extreme tip buffy white, rest of tail brown with paler margins ; a whitish streak from the nostrils over the eye ; ear coverts and cheeks streaky brown ; lower plumage pale, slightly rufous buff, the breast boldly streaked with dark brown ; sides of the body more faintly streaked.

Young birds are more rufous ; the feathers of the upper surface are rounded and white at the tips.

Bill dark horny brown above, paler beneath ; iris brown ; legs fleshy brown.

Dimensions rather variable ; length about 6.3 ; wing 3.35 ; tail 2.1 ; tarsus .9 ; bill from gape .7.

*Distribution*.—The Indian Skylark is found almost throughout the Indian Empire, and ranges eastwards to Southern China and the Philippines. The present sub-species occurs in Southern India and Ceylon. With us it appears to be resident all the year round in the drier parts of the low-country. In the damp west and south-west it is only a north-east monsoon visitor, probably because it nests on the ground, and in these parts cannot be sure of a dry spell during the breeding season. It is also resident in the drier hill country, and I have found it breeding at 4,500 feet on the Uva patanas.

*Habits*.—Much the same as those of the English Skylark. It is fairly abundant on the grassy flats round the coastal lagoons and at the head of some of the larger inland tanks. The song is not so loud or sustained as that of the English Skylark, nor does the bird mount and sing for so long a period. The breeding season is during the dry weather, from April to July. The nest is a neatly made, little cup of grass and grass roots, lined with finer materials of the same nature and built in a little depression of the ground under the shelter of a tussock of grass. The two or three eggs are slightly pointed ovals in shape. There are two types. In one the egg is a dull, whitish stone colour, thickly spotted, chiefly at the larger end, with dull, dark brown over fainter marks of dingy purplish gray. In the other the colour is a more glossy whitish with smaller and more evenly scattered freckles of yellowish brown and dull gray. Average size .84 by .60.

### 109. MIRAFRA ASSAMICA AFFINIS

The Madras Bush-Lark (Pl. VI. Fig. 3.)

*Gomarittā*, Sinhalese; *vānam-pādi*, *pullu*, Tamil.

*Mirafra affinis* Jerd. Madr. Jour. L. S. xiii. pt. 2. p. 136. (1844); Legge p. 634; Oates & Blan. Vol. II. p. 335.

*Description*.—Upper plumage and wing coverts dark brown with broad, brownish buff margins, which are paler on the hind-neck and wing coverts; wing quills brown with rufous margins and a rufous area on the basal portion of the inner webs; tail feathers brown with pale rufous edges, the outside feather with a broader edge on the outer web; lores brownish; an indistinct, buff streak over the eye; ear coverts and cheeks buff streaked with brown; lower parts whitish buff, palest on the chin and throat. the lower throat and the breast streaked with broad, triangular patches of rich brown; flanks tinged with brown.

Bill, upper mandible dark brown, the margin and lower mandible, except the tip, flesh coloured; iris reddish, or yellowish brown; legs and feet fleshy white.

Dimensions rather variable: length about 6; wing 3.2; tail 2; tarsus 1; bill from gape .7.

*Distribution*.—Common all over the low-country, except in the dampest districts, where it is not so abundant. It is not found in the hills except as a straggler. It also occurs over a large part of Southern India.

*Habits*.—Found wherever there is dry pasture, or any little, open stretch of dry grass. It is fond of perching on bushes, or dead branches of trees. The song is sweet, but low and not nearly so sustained as that of the Skylark. The bird when singing mounts rapidly for a short distance and then sinks down with its wings extended. The breeding season is from about April to July. The nest much resembles that of the Skylark, and is placed in similar situations, but is at times more or less domed with a thin covering, concealed among the dry stems and blades of the tussock of grass in the shelter of which it is placed. The two or three eggs are rather broad, slightly pointed ovals. The ground colour is whitish with generally a fair amount of gloss. The markings vary a good deal in size and density, and range from reddish to yellowish brown over paler marks of dull purple and purplish gray. Average size .84 by .63.

#### 110. PYRRHULAUDA GRISEA GRISEA

##### The Ashy-crowned Finch-Lark

*Gōmarittā*, Sinhalese; *vānam-pādi*, *pullu*, Tamil.

*Alauda grisea* Scop. del Flor. et Faun. Insubr. ii. p. 95. (1786) (no locality); *Pyrrhulauda grisea*, Legge p. 637; Oates & Blan. Vol. II. p. 341.

*Description*.—Male: Upper plumage ashy brown, the feathers with pale gray margins, which are broadest on the forehead and crown; wing coverts and quills dark brown with whitish gray margins, wider and more conspicuous on the coverts and inner quills; tail feathers light brown with whitish edges, the outer feathers at times almost wholly white; lores, front part of cheeks, a streak over the eye, chin, throat, sides of neck, and lower parts to the tail coverts brownish black; hind cheeks and ear coverts white; a grayish white patch on the sides of the breast.

Female: The upper plumage is darker brown, at times tinged with rufous; the gray margins are narrower and darker, the whitish margins of the wing feathers not so conspicuous; ear coverts brown and gray, like the crown; those parts, which in the male are black, or white, are grayish white with ill-defined, dingy brown streaks.

Immature birds resemble females, but the margins on the upper plumage are broader and more distinct.

Bill whitish in males, a little darker in females; iris dark brown; legs and feet flesh colour.

Length about 5 ; wing 3 ; tail 1.75 ; tarsus .6 ; bill from gape .5.

*Distribution*.—This little species is found in the plains throughout the greater part of India proper. With us it is confined to the dry, maritime zones of the north, north-west, and south-east, but it occasionally straggles, probably storm-driven, to other parts, and has been seen in Colombo and at the top of Ramboda Pass.

*Habits*.—Found in little troops on arid plains near the coast. It feeds on the ground and squats very close, occasionally taking short, little flights in the air, when it gives out a cheerful, but weak, little warble. The breeding season is from May to July. The nest is placed in a small depression on the bare plain, right out in the open, occasionally in the centre of an old desiccated patch of cowdung. It is a minute, shallow cup of fine, dry grass and grass roots, with occasionally a scrap of wool in the thin lining. The top is neatly levelled off flush with the surface of the ground, so that the nest absurdly reminds one of a hole in a bagatelle board. There are only two eggs. The ground colour is whitish, rather sparingly, but evenly freckled with fine spots of yellowish brown. Occasionally the markings form a zone round the middle. Average size .75 by .54.

### Family ZOSTEROPIDAE

#### *White-eyes*

The White-eyes are a group of which the classification has been much in dispute. Oates placed them among his *Crateropodidae*, other ornithologists either with the Sunbirds—*Nectariniidae*; the Flowerpeckers—*Dicaeidae*; or the Honeyeaters—*Meliphagidae*. Their natural affinities, on the whole, seem to be near the Sunbirds, and I have followed Stuart Baker, who accords them family rank and places them just before that group. They are all very small, arboreal birds, which are found over a great part of Africa and in Southern Asia and Australia. The bill is curved, slender, and pointed, the rictal bristles are few and small. The tongue is peculiar; according to Gadow, it is split into two and each half is broken up into numerous, stiff, horny fibres, like a little brush. The nostrils are covered by a large membrane and the eye is surrounded by a velvety fringe of small, white feathers—a very characteristic mark of the Family. The wing is short and rounded; there are ten primaries, the first being microscopic. The tail is short and square, the legs and feet weak. Two forms occur in Ceylon, both of which are peculiar to the Island.

*Key to Ceylon Zosteropidae*

- A. Upper plumage greenish yellow.  
*Zosterops palpebrosa egregia* (Small Ceylon White-eye).  
 B. Upper plumage dark olive green.  
*Z. ceylonensis* (Large Ceylon White-eye).

**111. ZOSTEROPS PALPEBROSA EGREGIA****The Small Ceylon White-eye***Mal-kurullā*, Sinhalese.

*Zosterops egregia* Madaraz. Ann. Mus. Budapest. i.x. p. 422. (Ceylon);  
*Z. palpebrosa*, Legge p. 582; Oates & Blan. Vol. I. p. 214.

*Description*.—Upper plumage greenish yellow, slightly purer yellow on the forehead and upper tail coverts and on the sides of the neck, where it blends into the primrose yellow of the throat and fore-neck; wings and tail brown, edged with the same greenish yellow hue as the sides of the neck; a ring of white feathers round the eye; lores and a small streak below the eye black; breast, abdomen, and flanks grayish white, the centre of the abdomen at times faintly washed with yellow; under tail coverts yellow; wing-lining white.

Bill blackish, bluish at base of lower mandible; iris rather variable, generally grayish, or brownish olive; legs and feet slate blue.

Length 4.25; wing 2.1; tail 1.6; tarsus .6; bill from gape .47.

*Distribution*.—The present sub-species is peculiar to Ceylon and is found all over the low-country and in the hills to about 4000 feet, above which it is replaced by the next species. Allied sub-species occur all over India proper and in part of Upper Burma.

*Habits*.—A rather gregarious little bird, which associates in flocks, or small parties, hunting among the leafy boughs of trees, either in forests, or gardens. It feeds partly on insects, partly on buds and flowers. The breeding season is mainly from June to August. The nest is a dainty, little cup of tendrils, fine grass stalks, and moss, woven together with cobwebs, and generally lined with a little vegetable down. It is placed in the slender fork of a small branch about 6 to 20 feet from the ground. The two eggs are pale, uniform blue, and are rather pointed at the small end. Average size .62 by .46.

**112. ZOSTEROPS CEYLONENSIS****The Large Ceylon White-eye (Pl. VII. Fig. 1.)***Mal-kurullā*, Sinhalese.

*Zosterops ceylonensis* Holdsworth, P. Z. S. 1872. p. 459.; Legge p. 585;  
 Oates & Blan. Vol. I. p. 215.

*Description*.—Upper plumage and sides of neck dark olive green, paler on the rump and darker on the crown and forehead ; wings and tail brown, edged with the green of the back ; a ring of white round the eye ; lores and a small streak below the eye blackish ; chin, throat, neck, upper breast, thighs and tail coverts greenish yellow ; lower breast, abdomen, and flanks grayish white, the abdomen at times tinged with yellow ; wing lining white.

Bill blackish, base of lower mandible bluish, or slaty ; iris variable, generally yellowish, or reddish brown ; legs and feet bluish, or pale leaden.

Length 4·6 ; wing 2·2 ; tail 1·7 ; tarsus ·65 ; bill from gape ·6.

*Distribution*.—Peculiar to Ceylon and confined to the hills down to about 3,000 feet.

*Habits*.—Gregarious like the last species. It is found in little flocks among forest, in trees and bushes on open places near woods, or in leafy gardens. It breeds from March to May. The nest and eggs closely resemble those of the last species. Average size of eggs ·64 by ·45.

## Family NECTARINIIDAE

### Sub-family NECTARINIINAE

#### *Sunbirds*

The Sunbirds are a Family of small birds, which, in the Tropics of the Old World, correspond to the Humming Birds of Tropical America. Together with the next Family—*Dicaeidae*—all Indian forms, at any rate, are characterized by the finely serrated edges on the terminal third of each mandible. The tongue is tubular ; the bill long, curved, and cylindrical ; the rictal bristles are short ; the wings moderate ; there are ten primaries, the first being small ; the legs and feet are weak, the claws curved and sharp.

The sexes are markedly different ; the males are clad mainly in brilliant, metallic hues, the females in a more sober garb, generally of pale brown above and yellow beneath. Most field observers are of the opinion that for two or three months in the year the males of most species drop their breeding plumage and more or less resemble females. Oates, however, after examining the large series from India in the British Museum, states that this cannot be so, as the series includes males, in full plumage, shot in practically every month of the year, and that it is only immature males which resemble the hens. His data may,



however, be accounted for by the fact that the off-season plumage is, admittedly, worn for only a short period, and that the breeding season, as often happens in India, overlaps in different localities. or even in some districts, with different birds.

Sunbirds are entirely arboreal, and feed mainly on nectar, which they extract from blossoms with their long tongues. They do not, however, hover on the wing, for sustained periods while sipping, as do Humming Birds, but cling, while feeding, to an adjoining stem. They nearly all build the most beautiful little pear-shaped nests, which are hung from a twig, or the under side of a broad leaf; but one Ceylon species—Loten's Sunbird—as will be noted, is an exception to this rule.

Four species have been recorded from Ceylon, all belonging to one genus—*Cyrtostomus*—of the Sub-family *Nectariniinae*. The other Indian Sub-family, the Spider Hunters—*Arachnotherinae*—is not represented in the Island.

*Key to Ceylon Nectariniinae*

A.—Bill large, over .75 inch \*; males in full plumage entirely metallic and dark hued; females pale brown above, uniform dingy yellow beneath.

- (1) Bill over 1 inch; males with snuff brown abdomen.

*Cyrtostomus lotenius* (Loten's Sunbird).

- (2) Bill .8 inch; males with blue black abdomen.

*C. asiaticus asiaticus* (Purple Sunbird).

B.—Bill smaller, .6 inch\*; males with brilliant plumage above, and on fore-neck and upper breast; lower breast and abdomen in both sexes yellow.

- (1) Males: upper tail coverts metallic red; females: uniform pale yellow beneath; rump and upper tail coverts dull red.

*C. minimus* (Small Sunbird).

- (2) Males: upper tail coverts metallic purple; females: chin and throat ashy white; rest of lower parts bright yellow.

*C. zeylonicus*. (Purple-rumped Sunbird).

\* I. e. the distance in a straight line from gape to tip.

## 113. CYRTOSTOMUS LOTENIUS

## Loten's Sunbird

*Ran-sutikā*, Sinhalese ; *thēn-kudī, kudiyān*. Tamil.

*Certhia lotenia* Linn. S. N. I. p. 188. (1766) (Ceylon); *Cinnyris lotenius*, Legge p. 563; *Arachnechthra lotenia*, Oates & Blan. Vol. II. p. 358.

*Description*.—Male in full plumage : Head, upper plumage, and lesser wing coverts metallic green, changing to lilac according to the angle from which it is viewed; greater coverts and wings deep brown; tail black glossed with purple; chin and throat dull purple with, in certain lights, a metallic green gloss, which becomes more brilliant on the sides of the neck; breast a stronger purple; rest of lower parts snuff brown, separated from the purple of the breast by a band of maroon red; on each side of the breast a small yellow tuft, at times mixed with orange.

Female : Upper plumage, including wings and sides of head and neck, olive brown; tail black, the outer feathers with brownish white tips; lower parts dull yellow.

Males after the autumn moult resemble females, with the exception of a broad, metallic stripe down the fore-neck and a certain amount of metallic gloss on the lesser wing coverts and tail coverts. The breeding plumage is gradually assumed after a few weeks.

Bill, legs, and feet black; iris brown.

Length 5·5; wing 2·3; tail 1·6; tarsus ·6; bill from gape 1·1. Females are slightly smaller.

*Distribution*.—Common in most parts of the low-country, except in the arid, coast zone of the north, north-west, and south-east. It occurs in the hills up to about 3,000 feet, in certain localities considerably higher. It is also found in Southern India.

*Habits*.—Familiar in flower gardens throughout its range. In the jungle it avoids forest, and is commonest in open bushy spaces near trees. It feeds mainly on the nectar and pollen of flowers, and is very partial to *Hibiscus* blossoms. At times it eats small spiders and other soft insects. The breeding season is from February to May. The nest is usually, not the little, hanging structure made by most species, but placed in the large, flocculent masses of cobweb spun in low bushes by a certain species of spider. In the interior of the mass the birds press out a more or less globular chamber, lining the walls with vegetable down, and generally providing a little eave of cobweb over the entrance, which is at one side. If spider's webs are not available, they appear on occasions to construct a little, pear-shaped, hanging structure like

that of the next species. The two or, very rarely, three eggs are long ovals, rather pointed at the small end. The ground colour is grayish white, evenly marked all over with fine, streaky spots of grayish brown, at times with a dull purplish, or greenish tinge. Occasionally the marks are concentrated in a zone towards the large end. Average size .69 by .46.

#### 114. CYRTOSTOMUS ASIATICUS ASIATICUS

##### The Purple Sunbird

*Sutikā*, Sinhalese; *th ēn-kudi*, *pū-kudichchān*, (E Prov.) Tamil.  
*Certhia asiatica* Lath. Ind. Orn. i. p. 288. (1790). (India); *Cinnyris asiaticus*, Legge, p. 566; *Arachnechthra asiatica*, Oates & Blan. Vol. II. p. 359.

*Description*.—Male in full plumage: Upper parts, including lesser wing coverts and sides of head and neck, metallic green, glossed with purple when viewed at certain angles; greater wing coverts and wings dull, dark brown very faintly washed with purple; tail black glossed with purple; chin, throat, and fore-neck dark metallic purple; breast metallic, greenish blue glossed with purple; pectoral tuft yellow, at times streaked with orange; remainder of lower parts black, shot with deep blue; lower tail coverts more metallic and glossed like the breast; below the breast there is at times an incomplete, dull maroon band.

Female: Upper plumage pale olive brown; wing coverts and quills darker and with pale edges; tail bluish with narrow, whitish tips on the outer feathers; an indistinct whitish eyebrow; lower plumage bright yellow.

Males after the autumn moult resemble females, except for a broad stripe of purple down the fore-neck, while the wing coverts, quills, and tail remain practically unchanged.

Bill, legs, and feet black; iris deep brown.

Length 4.5; wing 2.25; tail 1.4; tarsus .55; bill from gape .8.

*Distribution*.—A little local, but found over the greater part of the Island, at all elevations, where there is open bush-covered country; it is commonest in the drier districts. It occurs over the greater part of India proper.

*Habits*.—Very similar to those of Loten's Sunbird. Like that species it feeds on spiders, &c. as well as on nectar. The breeding season is during the first half of the year. The nest is a beautiful, little, pear-shaped structure hung from a twig. The walls are made of all sorts of little scraps of dry grass, dead wood, &c., woven together with cobwebs. The outside is ornamented with little bits of bark, dried flower buds, empty chrysalis cases, scraps of dead twigs, &c.; the interior is lined with soft, vegetable down; the entrance is at one side, and is

protected by a neat little eave. There are generally two eggs. These are typically a little less elongated than those of the last species. The ground colour is generally brownish white, evenly marked all over with fine, streaky spots of brown; zonally marked specimens are by no means rare. Average size .67 by .47.

### 115. CYRTOSTOMUS MINIMUS

#### The Small Sunbird

*Sutikā*, Sinhalese; *thên-kudī*, *pu-kudichchān* (E. Prov.), Tamil. *Cinnyris minima* Sykes. P. Z. S. 1832. p. 99. (Deccan); *C. minimus*, Legge, p. 572; *Arachnechthra minima*, Oates & Blan. Vol. II. p. 36.

*Description*.—Male in full plumage: Forehead and crown metallic green; lores, cheeks, and ear coverts black; back and scapulars crimson; rump and upper tail coverts bright metallic red with a lilac gloss; lesser and median wing coverts black with crimson tips; greater coverts and quills dull black; chin and throat metallic lilac; upper breast and sides of neck crimson; rest of lower parts pale yellow separated from the crimson chest by a band of black; pectoral tufts sulphur yellow.

Females: Head, hind-neck, back, and scapulars olive green; rump and upper tail coverts dull red; tail feathers dark brown with rufous edges; wings brown with olive green edges to the feathers; lower plumage pale yellow.

After the autumn moult males resemble females, but retain the lilac rump and a little red on the shoulder of the wing.

Bill, legs, and feet black; iris dark brown.

Length about 3.75; wing 1.9; tail 1.3; tarsus .6; bill from gape .6.

*Distribution*.—The inclusion of this bird in the Ceylon list rests on the records of Layard and Holdsworth, the former of whom recorded it from the north of the Jaffna peninsula, while the latter stated that it is occasionally seen near Colombo. It may be looked for in the extreme north of the Island. In India it is found on the west of the peninsula, from about Bombay to Cape Comorin.

*Habits*.—In India this species goes about in little troops of three or four, and shifts its quarters a good deal. It is found in gardens and low brushwood. On the Nilgiris it breeds about September. The nest and eggs are small editions of those of *C. asiatica*. Size of eggs about .62 by .42.

### 116. CYRTOSTOMUS ZEYLONICUS

#### The Purple-rumped Sunbird (Pl. VII. Fig. 2.)

*Mal-sutikā*, Sinhalese; *thên-kudī*, *pu-kudichchān* (E. prov.), Tamil. *Certhia zeylonica* Linn. S. N. I. p. 188. (1766) (Ceylon); *Cinnyris zeylonica*, Legge, p. 569; *Arachnechthra zeylonica*, Oates & Blan. Vol. II. p. 364.

*Description.*—Male: Forehead, crown, and lesser wing coverts metallic green, shot in some lights with lilac; hind-neck, sides of neck, back, scapulars and median coverts, and a band across the fore-neck dull, deep maroon; rump and upper tail coverts metallic purple; greater wing coverts and quills dark brown with rust coloured edges; tail dull black faintly washed with purple, the outer feathers with traces of white tips; sides of head copper brown; chin and throat metallic purple; breast, abdomen, and under tail coverts bright yellow; flanks and wing lining silky, grayish white.

Female: Upper plumage grayish brown, the back tinged with green; upper tail coverts and tail black, the outer tail feathers with traces of a white tip; wing brown, the quills with rufous edges; an indistinct whitish eyebrow; sides of head ash gray; cheeks, chin, and throat grayish white; rest of lower parts yellow; flanks and wing-lining silky, grayish white.

Bill, legs, and feet black; iris red.

Length about 4·5; wing 2·1; tail 1·4; tarsus ·6; bill from gape ·6.

*Distribution.*—Common all over the Island, ascending during the north-east monsoon to the highest elevations. It is most abundant in the districts with a fairly heavy rainfall. In India it occurs over the peninsula proper and in Eastern Bengal.

*Habits.*—Familiar in town gardens, but it is also more partial than the other species to heavy jungle and forest. Like our other Sunbirds it feeds on soft insects, as well as on nectar and pollen. The breeding season is mainly during the first half of the year. The nest is a little, pear-shaped structure, like that of the Purple Sunbird, but usually a trifle more globular and more carefully concealed, being generally hung from a twig at the back of a bunch of leaves instead of in plain view. There are two eggs. The ground colour is dull green, or greenish white, the markings greenish, or olive brown, often arranged mainly in a zone, or cap near the large end. Average size ·62 by ·46.

## Family DICAEDAE

### *Flowerpeckers*

Like the Sunbirds the Flowerpeckers have the terminal third of both mandibles serrated, though the serrations are so fine that the aid of a lens is required to see them, except in a very good light. The bill, however, is short and triangular, not long and cylindrical. The rictal

bristles are poorly developed, but in some forms the nostrils are covered by a tuft of hairs. The wing in certain genera has nine primaries, in others, including all our Ceylon species, there are ten, the first being small. The tail is always short, and the legs and feet weak. Most Flowerpeckers build elaborate, little hanging nests resembling those of the Sunbirds.

All the species are of extremely small size. The forms found in Ceylon are rather sober hued, but many of the Family are brilliantly coloured. In some species the sexes are dissimilar. The Family is found over the Oriental region and a part of Australia. None of them are migratory. Three species, each belonging to a separate genus, occur in Ceylon and one is not found elsewhere.

### Key to Ceylon Dicaeidae

#### A.—Bill slender.

- (1) Sexes alike; lower parts grayish.

*Dicaeum erythrorhyncus* (Tickell's Flowerpecker).

#### B.—Bill stout; lower mandible swollen.

- (1) Sexes dissimilar; lower parts white and yellow; nostrils covered with hairs.

*Acmonorhynchus vincens* (Legge's Flowerpecker.)

- (2) Sexes alike; lower parts ashy yellow streaked with greenish brown; nostrils exposed.

*Piprisoma squalidum squalidum* (Thick-billed Flowerpecker).

### 117. DICAENUM ERYTHORHYNCHUS

#### Tickell's Flowerpecker

Vernacular names not recorded.

*Certhia erythrorhynchus* Lath. Ind. Orn. i. p. 299. (1790) (India); *Dicaeum minimum*, Legge, p. 574; *D. erythrorhynchus*, Oates & Blan. Vol. II. p. 38.

*Description*.—Upper parts ashy olive, slightly tinged with green towards the rump; wings and coverts brown, the coverts and inner secondaries with paler edges; tail blackish brown; lores and cheeks whitish, darkening on the ear coverts; lower parts grayish white, the sides of the chest darker, the centre of the breast and abdomen tinged with buff.

Bill, dark brown above, fleshy beneath; iris brown; legs and feet brownish slate colour.

Length 3·3; wing 1·8; tail ·95; tarsus ·5; bill from gape ·45.

*Distribution*.—Common all over the Island at all elevations. It occurs over the greater part of India and in portions of Burma.

*Habits*.—Our smallest bird. It is generally found wherever there are trees infested with the parasitic *Loranthus*, on the berries of which it feeds with avidity. In the forest it also feeds on the berries of jungle creepers. Usually not more than two birds are seen together. It is a restless little species, continually darting from branch to branch. The cry is a sharp, but weak little chirp. The breeding season appears to be from April till August. The nest is generally a pear-shaped structure, like that of a Sunbird, but I once saw a nest, presumably of this species, like a little hammock suspended at either end from a twig. The two or three eggs are pure white, glossless ovals. Average size .6 by .40.

### 118. *ACMONORHYNCUS VINCENS*

**Legge's Flowerpecker** (Pl. VII. Fig. 3.)

Vernacular names not recorded.

*Prionochilus vincens* Solater, P. Z. S. 1872. p. 729. (Ceylon); *Pachyglossa vincens*, Legge. p. 377; *Acmonorhyncus vincens*, Oates & Blan. Vol. II, p. 382.

*Description*.—Male: Top and sides of head, the upper plumage, and lesser wing coverts dull, steel blue, paling a little on the rump; the concealed bases of the feathers black; wings and tail blackish, the coverts and inner secondaries edged with the hue of the back, the secondaries faintly edged toward the tip with bluish green, the basal portion of the inner webs of the quills white; four central tail feathers unmarked, the remainder with white tips, increasing in breadth on the outer feathers; chin, throat, and chest white; breast saffron yellow, paling to almost white on the lower tail coverts.

Female: Head and hind-neck ashy blue; upper plumage olive brown, tinged with green on the lower back and rump; wings and tail not so black as in the male; lower parts not so brightly coloured.

Bill black, paler at base of lower mandible; iris brownish red; legs and feet blackish brown.

Length 4.1; wing 2.35; tail 1.2; tarsus .5; bill from gape .45. Females are slightly smaller.

*Distribution*.—Peculiar to Ceylon, and confined mainly to the forests of the wet low-country zones; but it has recently been recorded from Pussellawa in the Central Province at an elevation of 3,000 feet.

*Habits*.—Rather a rare little bird, living entirely among, or near heavy jungle. It associates in small flocks, hunting among creepers on the trunks of trees for berries. Nothing is known of its nidification.

## 119. PIPROSOMA SQUALIDUM SQUALIDUM

## The Thick-billed Flowerpecker

Vernacular names not recorded.

*Pipra squalida* Burton. P. Z. S. 1836. p. 113. (Himalayas); *Piprosoma agile*. Legge. p. 579; *P. squalidum*. Oates & Blan. Vol II. p. 382.

*Description*.—Upper plumage olivaceous brown, the rump and upper tail coverts tinged with green; wings and tail brown edged with olive the tail feathers with white tips, broad on the two outer feathers, more narrow on the others; lores grayish; face and ear coverts brownish; chin and throat white; a narrow, brown streak down each side of throat; lower parts pale ashy yellow with greenish brown streaks.

Bill leaden brown; iris orange with a golden inner circle; legs dusky lead colour.

Length 4; wing 2.2; tail 1.1; tarsus .5; bill from gape .4.

*Distribution*.—Rather rare; its chief haunts appear to be in the interior of the northern forest tract, but it occurs sparingly in Uva and parts of the Central Province. It occurs over a great part of India proper.

*Habits*.—Keeps rather to the tops of trees in forest, where it feeds on spiders and small insects. The breeding season is probably in April and May. The nest resembles a little pocket, with the opening at one side, hung from a twig. It is composed of vegetable fibres and flower buds felted together with cobwebs so firmly that it can be squeezed up and yet regain its shape. The two or three eggs are white or pinkish, freckled over with small, brownish pink, or claret coloured spots. Average size (of Indian eggs) .63 by .45.

## Family PITTIDAE

*Pittas*

The Pittas (*vide* my introductory remarks on the Order) are the sole Indian Family belonging to the division *Anisomyodi*. In addition to the different structure of the syrinx, they are also distinguished from all other Passerine birds found in Ceylon by the formation of the wing. There are ten primaries, but the first, instead of being notably small, is almost as long as the second. Their long legs, very short tail, and beautiful, distinctive coloration also serve to render their identi-



fication easy. Pittas occur all over South-eastern Asia, being most numerous in the Malay Archipelago. Some species extend into Australia, while one is found in Africa. They all live on the ground, and are insectivorous. They can hop and run well. Most species are found in thick undergrowth, and many of them are more or less migratory. Only one form is found in Ceylon, and it occurs only as a migrant.

## 120. PITTA BRACHYURA

### The Indian Pitta

*Avichchiyā*, Sinhalese; *āru-mani-kuruvi*, *totta-kallan*, Tamil.

*Corvus brachyurus* Linn. S. N. i. p. 158. (1766); (Ceylon); *Pitta coronata*, Legge p. 687; *P. brachyura*, Oates & Blan. Vol. II. p. 393.

*Description*.—Forehead and crown yellowish brown, divided in the centre by a slightly irregular, black band, running back to the nape and bordered below by a narrow, white band over the eye; a broad, black band from the gape of the bill across the face and ear coverts, merging on the nape with the median black band; a few feathers below the eye whitish; back, scapulars, and upper rump green, the upper back more or less washed with light brown; lower rump and upper tail coverts shining, turquoise blue; tail black tipped with dull blue; lesser wing coverts shining, turquoise blue with a black patch where the wing joins the back; median coverts and innermost secondaries green; greater coverts green, the outer feathers washed with blue and with black bases; primary coverts black; primaries black with grayish tips and a white band across their bases; secondaries black with white tips and a broad border of bluish green on the terminal half of the outer webs; chin, throat, and sides of neck up to the black band white; remainder of lower parts fawn colour; the middle of the abdomen, vent, and lower tail coverts scarlet.

Bill blackish, the ridge and basal part of lower mandible reddish brown; iris dark brown; legs and feet flesh colour.

Length about 7; wing 4.1; tail 1.7; tarsus 1.4; bill from gape 1.1

*Distribution*.—A fairly common north-east monsoon migrant, arriving in October and leaving in April. It spreads all over the island, but only occasionally visits elevations of over 5,000 feet. It occurs over practically the whole of India proper, but in many parts in the north and south of its range it is a seasonal migrant.

*Habits*.—A shy bird, which keeps to thick cover in undergrowth, secondary jungle, and thick woods. It may occasionally be seen in the evening flitting from one cover to another. Its presence is usually made

known by its shrill, rather pleasant call, which is uttered chiefly in the early morning and evening, and is well expressed by the vernacular Sinhalese name—*avichchiya*. Birds on their first arrival on the west coast are much exhausted by their flight, and frequently take shelter in town gardens, or even bungalows. Stray specimens occasionally loiter, and have been obtained during the south-west monsoon, but it is not likely to be found breeding in Ceylon.

## Order II. PICI

### Family PICIDAE

#### Sub-family PICINAE

#### *Woodpeckers*

The true Woodpeckers, together with two allied Sub-families unknown in Ceylon—the Piculets and Wrynecks—form a well-marked Family, which has been placed in a separate Order. They are found in the temperate and tropical regions all over the world, except in Madagascar, Australasia, and Polynesia, and are readily distinguishable by their outward form and habits, which do not vary greatly among the different species. The bill, which is generally strong and chisel-shaped, is used for cutting away the bark of trees in search of insects, and for excavating nest holes in tree trunks, or branches. The tongue is peculiar, being of enormous length, and provided with glands secreting a sticky fluid, to which insects adhere. The foot is usually four-toed, and adapted for climbing. The arrangement of the toes is zygodactylic, *i.e.*, the hallux, or true hind toe, and the fourth toe are directed backwards, the second and third toes, forwards. In one Ceylon genus, *Micropternus*, the hallux is rudimentary. The wings are short and pointed, and the flight undulatory. The tail feathers are provided with stiff shafts and are twelve in number, the outermost pair being frequently concealed by the tail coverts. Woodpeckers seldom perch, but cling to trees in an upright position with the tail pressed as a support against the stem, hence the tail feathers are often much worn. The birds generally alight at the foot of a tree and work their way up the trunk in a spiral, moving rapidly for a short distance, and then stopping to tap on the bark for insects. Their cry is generally a harsh scream, or in the smaller species a shrill trill. Their food consists wholly, or mainly, of ants and other similar insects. All Woodpeckers lay white eggs in a nest hole, which in nearly all cases is hollowed in the stem, or branch of a tree. One genus, however, *Micropternus*, makes the nest hole in the interior of the hanging nest of a certain species of ant.

Nine forms, divided among six genera, occur in Ceylon, two sub-species being peculiar to the Island.

## Key to Ceylon Picinae

A.—Mantle green. Genus *Picus*.

- (1) Length 11. Rump tinged with bright yellow. Male : Crown and crest crimson. Female : Crown and crest black.  
*Picus striolatus* (Little Scaly-bellied Green Woodpecker).
- (2) Length 9.5. Rump green. Male : Crown and crest crimson. Female : Crown dark olive, crest crimson.  
*P. chlorolophus chlorigaster* (Southern Yellow-naped Woodpecker).

## B.—Mantle black and white.

- (1) Length 7. A small crest, pale crimson in males, yellow in females.  
*Leopicus mahrattensis* (Yellow-fronted Pied Woodpecker).
- (2) Length 4.8. No crest. Males with a vermillion streak on side of occiput.  
*Iyngipicus gymnophthalmus* (Ceylon Pigmy Woodpecker).

## C.—Mantle dull rufous brown barred with black. Feathers below the eye, in males, tipped with crimson.

*Micropternus brachyurus lanka* (Ceylon Rufous Woodpecker).

## D.—Mantle wholly, or in part, either crimson, or yellow.

- (a) Bill about 1.5. Jaws, throat, and fore-neck black speckled with white. Genus *Brachypternus*.
  - (1) Mantle yellow or orange, crest crimson. Forehead and crown in males black tipped with crimson, in females black with white spots.  
*Brachypternus aurantius puncticollis* (Southern Golden-backed Woodpecker).
  - (2) Mantle and crest crimson, bill blackish. Forehead and crown in males black tipped with crimson, in females black tipped with white.  
*B. aurantius erithronotus* (Red-backed Woodpecker).
- (b) Bill about 2; jaws, throat, and fore-neck white with five longitudinal black stripes. Genus *Chrysocolaptes*.

- (1) Wing coverts golden, a white triangular patch on hind-neck and upper back. Crest crimson in males, yellow in females.  
*C. festivus* (The Black-backed Woodpecker).
- (2) Mantle crimson, bill greenish white. Crown and crest crimson in males, black with white spots in females.  
*C. guttacristatus stricklandi* (Layard's Woodpecker).

## 121. PICUS STRIOLATUS

### The Little Scaly-bellied Green Woodpecker

Kêrellā, Sinhalese ; *maran-kotti, tachchan-kuruvi*, Tamil.

*Picus striolatus* Blyth. J.A.S.B. xii. p. 1000. (1843) (Nepal); *Gecinys striolatus*, Legge p. 194.; Oates & Blan. Vol. III. p. 20.

*Description*.—Male : Crown and crest crimson ; general colour of upper parts olive, tinged with green ; rump and upper tail coverts bright yellow, sometimes tinged with orange ; wing quills dusky brown with white bars on the inner webs ; the primaries have white spots on the outer webs, and the outer webs of the secondaries are washed with green ; tail blackish brown with indistinct, lighter bars towards the base ; on the eyebrow a white stripe runs back to the nape, and is bordered above by a black stripe extending forward to the nostrils ; lores and cheeks dirty white, the cheeks with darker streaks ; ear coverts streaky gray ; chin and throat yellowish white with darker centres to the feathers and black streaks along the jaw ; under parts greenish white, each feather with a dark, V-shaped band near the margin, and some feathers with dark shaft stripes.

Female: Differs only in the crown and nape, which are black, streaked with ashy brown.

Bill dusky horn colour, the greater part of the lower mandible yellow ; iris red with an outer ring of white ; legs and feet dusky green.

Length 11 ; wing 5.2 ; tail 3.75 ; tarsus 1.00 ; bill from gape 1.5.

*Distribution*.—Rare in Ceylon and apparently found only on the higher patanas of the Central Province and Uva. In India it occurs in forest country on the Malabar Coast and on the eastern side of the peninsula north of the Godavari. It is also met with in the Eastern Himalayas, North Burma, and Siam.

*Habits*.—This species may be looked for on patanas which are thinly dotted with trees, and in the intersecting ravines where wooded. The eggs do not appear to have been found in Ceylon as yet. In India the birds breed from March to May, making the usual nest holes in trees, and laying four to five glossy white eggs, averaging 1.05 by .8.

122. **PICUS CHLOROLOPHUS CHLORIGASTER****The Southern Yellow-naped Woodpecker**

*Kérellā*, Sinhalese ; *maran-kotti*, *tachchan-kuruvi*, Tamil.

*Picus chlorigaster* Jerd. Madr. Journ. L.S. xiii. pt. 2 p. 139. (1844) (S. India);  
*Chrysophlegma xanthoderus*, Legge. p. 197; *Gecinus chlorogaster*, Oates  
 & Blan. Vol. III. p. 25.

*Description*.—Male : The feathers of the forehead, crown, crest, and a stripe down the jaw crimson with greenish black bases : nape yellow ; upper plumage and wing coverts olive green, the greater coverts golden olive ; wing quills dark brown with some white spots ; the outer webs of the inner primaries and secondaries orange red, bordered with bronze green ; tail black ; lores dusky ; face, throat, and under parts dull green, the throat, abdomen, and flanks more or less barred with white ; the breast generally unspotted.

Female : Forehead and crown dark olive, the crimson cheek stripe is wanting, otherwise it resembles the male.

Bill blackish, the sides of the lower mandible and the edge of the upper mandible near the gape yellowish ; iris brownish red ; legs greenish olive.

Length 9·5 ; wing 4·65 ; tail about 3·50 ; tarsus ·80 ; bill from gape 1·0 ; females are a little smaller.

*Distribution*.—Apparently confined to the southern half of the Island. It is found in the Western Province and Galle District. I have occasionally seen it north of Tangalla, and it occurs in the Eastern Province. It is also met with in the hills, mainly in Sabaragamuwa and Uva. In India it occurs on the Malabar Coast and the Western Ghats up to 5,000 feet.

*Habits*.—Rather a shy bird, found in forest country, especially near streams, and in decayed gardens where there is plenty of undergrowth. It may sometimes be seen on the ground breaking open dried cowdung in search of beetles. It feeds also on ants. In India this species breeds about March and April, making the usual nest hole in a tree in the jungle. One to three, but generally two, white eggs are laid. The texture is hard and glossy, the shape a long oval. Average measurement about 1 by ·74.

123. **LIOPICUS MAHRATTENSIS****The Yellow-fronted Pied Woodpecker**

*Kérellā*, Sinhalese ; *maran-kotti*, *tachchan-kuruvi*, Tamil.

*Picus mahrattensis* Lath. Ind. Orn. Supp. p. xxxi. (1801). (India);  
*Liopicus mahrattensis*, Legge p. 184; Oates & Blan. Vol. III. p. 43.

*Description.*—Male : Forehead and front of crown shining straw colour, remainder of crown with the crest pale crimson ; nape and hind-neck smoky brown ; back and scapulars white, much mixed with black ; wing coverts, wing quills, and tail black, largely spotted, or barred with white; rump and upper tail coverts white, the latter with broad, arrow-shaped, black markings; sides of face, chin, throat, and fore-neck white ; a broad, brown stripe runs from below the ear coverts down the sides of the breast ; remainder of lower parts white streaked with brown, the centre of the abdomen being stained with crimson.

Female : The whole of the top of the head, including the crest, straw yellow.

Bill dusky bluish, darker on the ridge and at the tip ; iris deep red ; legs and feet lead colour.

Length 7 ; wing 3·80 ; tail 2·5 ; tarsus ·7 ; bill from gape 1·05.

*Distribution.*—This little Woodpecker is nowhere very common. Its chief haunts are in the Mannar and Jaffna Districts. Thence it appears to have worked its way east and south, as it occurs in the Eastern Province and parts of the Hambantota District, and on the patanas in the drier parts of Uva and the Central Province. It is found in India in suitable places here and there throughout the peninsula, in the valleys at the base of the Western Himalayas, and the drier parts of Upper Burma.

*Habits.*—This species haunts low jungle and scrub, being especially fond of Euphorbia trees. The note is a weak trill. I have known it to breed in the Mannar District in May, and near Hambantota in July. The nest is a small hole in the stem, or branch of a decaying tree.

The three white eggs average about ·87 by ·68.

[*Note.* *Dryobates macei macei* (= *Dendrocopus macei*. Legge p. 185. foot-note). The Fulvous-breasted Pied Woodpecker—is said by Kelaart to have occurred in Ceylon, but his identification was probably incorrect, as the species is restricted to the base of the Himalayas, Lower Bengal, and parts of Assam.

It is slightly larger than *L. mahrattensis*, which it somewhat resembles in build, but has no crest. It may be distinguished by the uniform black of the hind-neck, upper back, and upper tail coverts, and by the bright crimson of the vent and lower tail coverts. The top of the head is crimson in males and black in females.

Length 7·5 ; wing 4·3.]

## 124. IYNGIPICUS GYMNOPHTHALMUS

### The Ceylon Pigmy Woodpecker

*Mal-kêrellā* Sinhalese ; *maran-kotti, tachchan-kuruvi* Tamil.

*Picus gymnophthalmus* Blyth J. A. S. B. xviii, p. 804. (1849) (Ceylon) ;

*Iyngipicus gymnophthalmus*, Legge. p. 186 ; Oates & Blan. Vol. III. p. 48.

*Description*.—Male : The top of the head, the centre of the nape, and the hind-neck very dark brown ; a broad, white stripe runs from behind the eye to the nape, and is bordered above by a streak of vermillion ; remainder of upper plumage dark brownish black ; the back is barred, and the wing quills, wing coverts, and tail are spotted with white ; the cheeks, ear coverts, and sides of the neck are brown ; under plumage dirty white, faintly streaked with brown in young birds ; under tail coverts streaked with brown.

Females lack the vermillion stripe over the eyebrow.

Bill olive brown, paler underneath ; iris white, at times tinged with gray, yellow, or red ; legs and feet greenish.

Length 4·8 ; wing 3 ; tail 1·25 ; tarsus ·58 ; bill from gape ·62.

*Distribution*.—Found nearly all over the low-country, except in the extreme north, and in the hills up to about 3,000 feet, occasionally higher. In India it occurs on the Malabar coast.

*Habits*.—This, the smallest of our Woodpeckers, frequents the top branches of trees. Its presence is generally betrayed by its note, a shrill long trill. It makes its nest hole in small dead branches, laying probably three white eggs, which measure about ·62 by ·53.

## 125. MICROPTERNUS BRACHYURUS LANKA

### The Ceylon Rufous Woodpecker

*Kêrellā*, Sinhalese ; *maran-kotti, tachchan-kuruvi* Tamil.

*Micropternus brachyurus lanka* Kloss, Ibis. 1918. (Ceylon) ; *M. gularis*, Legge p. 200 ; Oates & Blan. Vol. III. p. 57.

*Description*.—Male : General colour dull rufous ; head and cheeks dark brown, the feathers from the gape, beneath the eye, to the ear coverts tipped with crimson ; the upper plumage from the hind-neck to the tail is barred with black ; the chin and throat feathers have broad, darker borders and faint whitish edges ; the remainder of the lower plumage is almost uniform rufous brown, with indistinct black bars on the flanks and thighs.

Females have no crimson tips to the cheek feathers.

Bill dull black, paler beneath ; iris deep brown ; legs and feet slaty black.

Length 9·5 ; wing 4·75 ; tail 2·75 ; tarsus ·75 ; bill from gape 1·2.



*Distribution*.—Fairly well distributed throughout the low-country, and on the lower hills up to about 2,000 feet. The present sub-species is also found in S. Travancore. Allied races occur all over India and eastwards to Siam.

*Habits*.—This species is found in forest, or well-wooded gardens. It feeds mainly on ants, and occasionally may be seen on the ground in search of its food. The nest has not yet been recorded from Ceylon, but in India the breeding season is during April and May. The nest hole is excavated in the interior of large, hanging, ants' nests. Three fragile, glossless, white eggs are laid, measuring about 1·2 by ·68.

## 126. BRACHYPTERNUS AURANTIUS PUNCTICOLLIS

### The Southern Golden-backed Woodpecker

Kêrellā, Sinhalese; *maran-kotti*, *tachchan-kuruvi*, Tamil.

*Brachypternopicus puncticollis* Malh. Rev. Zool. 1845, p. 405. (Ceylon); *Brachypternus puncticollis*, Legge p. 205; *B. aurantius*, Oates & Blan. Vol. III. p. 58.

*Description*.—Male: Feathers of forehead and crown black with crimson tips; crest crimson; a fairly broad stripe runs from over the eye to the nape, another broad, white stripe extends from the nostrils across the cheek and broadens down the side of the neck; the sides of the head between these two stripes are streaky black and white; the hind-neck, upper back, primary coverts, rump, tail coverts, and tail are black; scapulars and middle of the back golden yellow; a portion of the wing coverts and the outer webs of the secondaries golden olive; primary quills and inner webs of secondaries black with white spots; the wing coverts are also more or less spotted with yellowish white; the jaws, chin, throat, and fore-neck are black, speckled with white; the lower neck and upper breast mainly black; the rest of the lower surface, with the upper flanks whitish, more or less tinged with tawny buff, each feather margined with black, most heavily on the breast; the lower flanks and under tail coverts barred with black.

Female: The feathers of the forehead and crown are black with terminal white spots, the crest is crimson as in the male.

Bill slaty black; iris reddish brown; legs and feet dark green.

Length about 10·5; wing 5·25; tail 3·5; tarsus ·8; bill from gape 1·5.

*Distribution*.—The present sub-species occurs in S. India and the extreme north of Ceylon. It is replaced in the south of Ceylon by the next form, which has a red back. Over the greater part of the northern forest tract birds are generally intermediate between the two forms, the hue of the back varying from pale orange yellow to orange red.

*Habits*.—A common bird in the extreme north of the Island, occurring in coconut and palmyra groves, village gardens, scrub jungle, and forest. It is usually seen in pairs. The nest is the usual hole in the stem of a tree. The breeding season is about April. Three rather glossy white eggs are laid, measuring about 1·10 by ·8.

## 127. BRACHYPTERNUS AURANTIUS ERITHRONOTUS

### The Red-backed Woodpecker (Pl. VIII. Fig. 1.)

*Kérellā*, Sinhalese; *maran-kotti, tachchan-kururi*, Tamil.

*Picus erithronotus* Vieill. Nouv. Dict. d'Hist. Nat. xxvi. p. 73. 1818 (Ceylon); *Brachypternus ceylonus*, Legge p. 202; *B. erythronotus*, Oates & Blan. Vol. III. p. 60.

*Description*.—In the typical form from the south of the Island, where *B. aurantius puncticollis* is not found, the present form differs from the last named as follows :—The middle of the back and the scapulars are bright crimson, the wing coverts and outer webs of the secondaries are duller crimson, while the black of the lower back and rump is faintly tinged with the same colour; the spots on the wing coverts are, as a rule, fewer and tinged with the colour of the mantle, they may be almost absent; the white stripes above and below the eye are considerably reduced in breadth. In the northern forest tract the birds are intermediate between this form and the preceding sub-species. The crimson of the mantle is tinged with orange, and the white stripes down the head and neck are more conspicuous.

The sexual differences in plumage are as in *B. aurantius puncticollis*.

Bill blackish; iris red; legs and feet dusky green.

Length about 11·5; wing 5·5; tail 4; tarsus ·7; bill from gape 1·5.

*Distribution*.—Peculiar to Ceylon. Found all over the low-country in the southern half of the Island. It ascends the hills to about 4,000 feet. As noted above, in the northern forest tract this form merges into the yellow-backed sub-species.

*Habits*.—This is the most abundant of our Woodpeckers, being equally common in plantations, or forest. It always alights near the bottom of a tree, and works its way spirally to the top, tapping the trunk for insects. It feeds largely on red ants. The flight is undulatory and jerky; the cry a loud harsh scream. The breeding season is from about March to June, and again in September. The nest is the usual hole in the stem of a decaying coconut, or other tree. The three eggs in appearance closely resemble those of the last species, and have approximately the same measurements.

## 128. CHRYSOCOLAPTES FESTIVUS

## The Black-backed Woodpecker

Kêrellā. Sinhalese ; *maran-kotti*. *tachchan-kuruvi*, Tamil.

*Picus festivus* Bodd. Tabl. Pl. Enl. p. 43 (1783) (Goa) ; *Chrysocolaptes festivus*. Legge p. 191 ; Oates & Blan. Vol. III, p. 64.

*Description*.—Male : Forehead brownish with large, white spots ; crown and crest crimson bordered by a black stripe ; a broad, white stripe runs from behind the eye to the nape, and expands into a triangle of white on the hind-neck and upper back ; the rest of the back, the scapulars, rump, upper tail coverts, and tail are black, as are the smaller wing coverts on the forearm ; the remainder of the wing coverts are black at the base, the exposed portions being golden olive with bright golden yellow fringes ; the outer webs of the secondary quills are golden olive ; remainder of wing quills brownish black, the outer webs with light brown, or greenish, and the inner webs with large, white spots ; a broad, black stripe runs from the eye down the side of the neck ; the jaws, chin, throat, and fore-neck are white with five longitudinal, black stripes ; the under parts are white streaked with black, most heavily on the breast.

Female : The fore part of the crown, as well as the forehead, is speckled black and white, the rest of the crown and crest are light golden yellow.

Bill blackish ; iris crimson ; legs slaty greenish.

Length about 12 ; wing 5·8 ; tail 3·5 ; tarsus 1·1 ; bill from gape 2.

*Distribution*.—A rare bird, found in a few forest localities in the northern half of the Island. Legge met with it also near Tissa in the Hambantota district. In India it is locally distributed throughout part of the peninsula, but is everywhere rare.

*Habits*.—I have come across several small colonies of this species in the North-Central Province and Puttalam District, always in large trees, and generally in the "tisbamba," or clearing, round isolated villages in the jungle. They nest high up in large trees, and, to judge from the number of holes, make a fresh nest every year. Apparently they roost in these nest holes. The breeding season is in March, and again in August. I once obtained an addled egg on April 1 from a nest in which there were two young ones, and again found a single young bird in September. The birds thus seem to have two broods and to lay from one to three eggs. The single egg in my collection is rather elongated, measuring 1·25 by ·88. The texture almost exactly resembles that of celluloid.

129. *CHRYSOCOLAPTES GUTTACRISTATUS STRICKLANDI*

## Layard's Woodpecker

*Kérellā*, Sinhalese ; *maran-kotti*, *tachchan-kuruvi*, Tamil.

*Brachypternus stricklandi* Layard. A.M.N.H. 2. xiii. p. 449. (1864); (Ceylon); *Chrysocolaptes stricklandi*, Legge. p. 188; Oates & Blan. Vol. III. p. 67.

*Description*.—Male : Forehead dark brown ; crown and crest crimson ; hind-neck blackish with large, white spots ; back, rump, wing coverts and outer webs of secondaries crimson, the colour being brightest on the rump ; primaries and inner webs of secondaries blackish brown with white spots ; tail coverts and tail black ; a row of white spots passes from behind the eye above the ear coverts to the hind-neck ; cheeks and sides of head and neck blackish brown ; the jaws, chin, throat, and upper fore-neck are white, at times tinged with buff, with five black, longitudinal stripes ; the feathers of the breast and lower fore-neck are white with broad, black borders, giving a scaly appearance ; remainder of lower parts more streaky black and white ; under tail coverts barred black and white.

Female : The whole of the top of the head above the eyes, together with the nape and hind-neck, are black with white spots ; the hindmost under tail coverts are dark brown.

Bill mainly greenish white, darker at the base ; iris yellowish white ; legs and feet greenish slate colour.

Length about 11·5 ; wing 5·15 ; tail 3·5 ; tarsus 1·05 ; bill from gape 2.

*Distribution*.—Peculiar to Ceylon ; found practically all over the Island in suitable forest country, but never so abundant as the two forms of *Brachypternus*. Allied sub-species are found over the greater part of the Oriental region.

*Habits*.—A bird usually found in tall forest ; in wilder districts it occasionally visits large trees in gardens. The flight is more rapid than that of the common Red-backed Woodpecker, and the note is a thin, shrill trill. It would appear to have much the same nesting habits as *C. festivus*. The first brood is hatched early in the year, and I once found an added egg with two young ones in September. Oftener only one egg is laid. The eggs measure about 1·16 by ·86.

### Order III. ZYGODACTYLI

#### Family CAPITONIDAE

##### *Barbets*

The Barbets are found in the tropical regions of Africa, Asia, and America. Four forms occur in Ceylon; two of them are species peculiar to the Island. In general structure and nesting habits they are akin to Woodpeckers, but they feed almost entirely on fruit, and perch on branches, instead of clinging to the stem in a vertical position. The bill is generally stout, slightly curved, and fairly powerful. Prominent bristles overhang the nostrils and spring from the chin. The wings are short and rounded; the tail is short and soft and composed of ten feathers. As in the Woodpeckers, the feet are zygodactylic, the first and fourth toes being directed backwards. The cry is a peculiarly monotonous call of from one to three syllables repeated at intervals. The nest hole is like that of a Woodpecker, the entrance being generally neatly bevelled and rounded. The eggs are of a dull glossless white.

In all Ceylon species the plumage is mainly green. The short wing quills and soft, but rather scanty plumage give the birds the appearance of not being quite fledged.

##### *Key to Ceylon Capitonidae*

A.—Larger forms; length over 8 inches; no crimson on head and neck.

- (1) Length 9·75; whole head and neck brown with pale streaks.

*Thereiceryx zeylanicus zeylanicus* (Ceylon Green Barbet).

- (2) Length 8·5; cheeks, chin, and throat blue.  
*Cyanops flavifrons* (Yellow-fronted Barbet).

B.—Smaller forms under 7 inches; patches of crimson on head and neck.

- (1) Throat yellow; cheeks black.

*Xantholaema jaemacephala indica* (Indian Crimson-breasted Barbet).

- (2) Throat orange; cheeks blue.

*X. rubricapilla* (Small Ceylon Barbet).

130. *THEREICERYX ZEYLANICUS ZEYLANICUS*

## The Ceylon Green Barbet

*Kotōruwā*, Sinhalese; *kūtūr, kukuruvān*, Tamil.

*Bucco zeylanicus* Gmel. Syst. Nat. i. p. 408. (1788) (Ceylon); *Megalaema zeylanica*, Legge. p. 208; *Thereiceryx zeylonicus*, Oates & Blan. Vol. III. p. 86.

*Description*.—Head, neck, breast, and sometimes the upper abdomen umber brown, each feather with pale shaft-stripes, on the head these stripes are not very distinct; back, wing coverts, and tail grass green, the mantle with a few pale streaks and the wing coverts tipped with small, white spots; wing quills brown with pale inner margins, the outer webs green, except on the first few primaries; on the abdomen the brown of the chest gradually merges into the pale grass green of the flanks and lower tail coverts; under surface of tail bluish.

Bill orange brown; iris red brown; a circle of naked, yellow skin round the eye; legs and feet light brownish yellow.

Length about 9·75; wing 4·37; tail 3; tarsus 1·2; bill 1·60.

*Distribution*.—Common over nearly all the low-country, except in the arid portions of the maritime districts and the dense forest tracts of the wet zone. It ascends the hills to three or four thousand feet. This sub-species is also found in S. Travancore. Two other sub-species occur in various parts of India.

*Habits*.—This bird is very common in village gardens and thin jungle, chiefly near cultivation. It feeds largely on various species of wild fig. The nest hole is hollowed out of a rotten tree, or even a fence post. The three dull white eggs are usually laid on a few stalks of dried grass which line the bottom of the cavity. Their average size is about 1·23 by ·87. There appear to be several broods, as I have taken eggs as early as March and as late as August.

131. *CYANOPS FLAVIFRONS*

## The Yellow-fronted Barbet

*Kotōruwā*, Sinhalese; *kūtūr, kukuruvān*, Tamil.

*Bucco flavifrons* Cuvier, Regne. An. i. p. 428. ex Levaill. (1817) (Ceylon); *Megalaema flavifrons*, Legge p. 212; *Cyanops flavifrons*, Oates & Blan. Vol. III. p. 94.

*Description*.—The forehead, front of crown, and a spot below the gape golden-yellow; top of the head brownish green, passing into the grass green of the remainder of the upper plumage; the feathers of the

nape and of the back and sides of the neck have pale shaft-stripes; wing quills brown with pale yellow inner margins, the outer webs of all but the first few primaries green; eyebrows, lores, cheeks, ear coverts, chin, and throat verditer blue; rest of lower plumage pale green, the breast feathers bordered, and the flanks and abdomen washed with emerald green; under surface of tail shot with blue.

Bill greenish horn colour, darker by the nostrils; iris light red; legs and feet greenish, sometimes bluish.

Length 8.5; wing 3.5; tail 2.30; tarsus .9; bill from gape 1.1.

*Distribution*.—Peculiar to Ceylon. Found chiefly in the hill zone, except at the highest altitudes. From the bases of the hills it spreads into the damp low-country zone, being found in most parts of the Western Province, Sabaragamuwa, and the Galle and Kurunegala Districts. In the drier forest region it is more restricted, but is found locally in parts of the Eastern Province and the district north of the Matale hills.

*Habits*.—Chiefly a forest bird, keeping to the tops of trees and feeding on fruit. It is very noisy in the mornings and evenings. The call is something like that of the preceding species, but more shrill. The birds breed in almost every month of the year. The nest hole is usually excavated in a soft-wooded tree. Two or three eggs are laid on the bare wood. They are white and smooth in texture, and generally slightly pointed at each end. Average size 1.10 by 1.80.

### 132. XANTHOLAEMA HAEMACEPHALA INDICA

#### The Indian Crimson-breasted Barbet

*Mal-kotōruwā*, Sinhalese; *sinna-kukuruvān*, Tamil.

*Bucco indicus* Lath. Ind. Orn. i. p. 205. (1790) (India); *Xantholaema haemocephala*, Legge. p. 218; *X. haematocephala*, Oates & Blan. Vol. III. p. 98.

*Description*.—Lores black; forehead and crown crimson; top and sides of head, hind cheeks, and a stripe forward along the jaw to the lower mandible black; a patch above and below the eye, the chin, and throat yellow; nape and sides of neck grayish green; remainder of upper plumage dull olive green; tail and outer web of most wing quills bluish green, the outer primaries and the inner webs of the remaining wing quills blackish with pale yellow edges; on the lower throat is a crimson patch, bordered behind by a wash of yellow; rest of lower plumage and the flanks whitish streaked with dull green.

Bill black; iris reddish; legs and feet coral red.

Length about 6; wing 3; tail 1.5; tarsus .8; bill from gape .9.

*Distribution*.—Found all over the drier parts of the low-country, and in the adjoining hills up to about 2,000 feet. This sub-species occurs practically all over the Indian Empire, except on the hills, and ranges east and south-east to the Malay Peninsula, and Sumatra.

*Habits*.—Common in almost every village garden in the localities in which it is found, also in thin jungle, especially near cultivation. It is a great fruit eater. It gets the name of Coppersmith from its cry (wonk-wonk-wonk, slowly repeated), which resembles the tapping of a hammer on copper. The breeding season lasts from January to June. The nest is a small hole in a decaying branch, or rotten fence post. Three dull, white, glossless eggs are laid on the bare wood at the bottom of the cavity. Like nearly all white eggs, they have a pinkish tinge when fresh and unblown. They are large for the size of the bird, measuring about .99 by .69.

### 133. XANTHOLAEMA RUBRICAPILLA

The Small Ceylon Barbet (Pl. VIII, Fig. 2.)

*Mal-kotōruwā*, Sinhalese; *sinna-kukuruvān*, Tamil.

*Bucco rubricapillus* Gmel. Syst. Nat. i. p. 408 (1788) (Ceylon); *Xantholaema rubricapilla*. Legge p. 215; Oates & Blan. Vol. III. p. 100.

*Description*.—A narrow black line across the base of the forehead; remainder of forehead and the front of the crown crimson, bordered behind by a black band which passes behind the eye to the cheeks; a stripe above and a patch below the eye, together with the chin and throat, bright orange; remainder of upper plumage dark green, tinged on the top of the head with blue; the outer web of most wing quills bluish green, the outer primaries and the inner webs of the remaining quills black with white inner margins; hind cheeks, ear-coverts, and sides of neck bluish; a small, crimson patch on the lower throat, fringed behind with orange; the bases of the throat feathers are black; lower parts from breast pale green, often with a bluish tinge.

Bill black; iris red brown; legs and feet coral red.

Length 6; wing 3.1; tail 1.4; tarsus .75; bill from gape .85.

*Distribution*.—Peculiar to Ceylon. It replaces the last species in the damp parts of the low-country, where it is commonest, and is found in the hills up to about 4,000 feet. It also extends locally into the dry zone, except in the arid maritime districts. It is, however, occasionally found in the Jaffna peninsula.

*Habits*.—Like the last species, this bird is common in gardens and compounds, but in the north and east it is rather more partial to



wild fruit trees in the forest. The call is quicker and sharper than that of the Coppersmith. The breeding season is from about March to June. The nest is the usual small round hole in the dead branch of a living tree. The eggs resemble those of the last species, but are slightly smaller averaging .9 by .65.

## Order IV. ANISODACTYLI

In the classification adopted by Gadow, the above Order comprises five Sub-orders: *Coraciæ*—Rollers; *Meropes*—Bee-eaters; *Halcyones*—Kingfishers; *Bucerotes*—Hornbills; and *Upupæ*—Hoopoes. This Order thus comprises birds which in outward appearance seem to have little in common; but all have the same structure of palate, that known as desmognathous; a hallux or hind toe is always present, while the three front toes are more or less joined at the base.

All members of the Order lay white eggs in a nest hole, which may be hollowed out, either in a tree, or in the ground, and in all cases the young when hatched are naked.

### Sub-order CORACIÆ

#### Family CORACIADÆ

##### *Rollers*

The Rollers are birds, mainly of brilliant plumage, found throughout most parts of the Old World. In build and in the shape of the bill they resemble Crows. The soles of the feet, however, are flat, and the three front toes more or less united at the base. The flight is buoyant, with vigorous flaps of the wings, and at intervals curious turnings and tumblings, which have given the birds their English name. The nest is placed in the hole of a decaying tree, and the eggs are white and glossy. Two genera are found in India: *Coracias*—the true Rollers, and *Eurystomus*—the Broad-billed Rollers. One species of each genus occurs in Ceylon.

##### *Key to Ceylon Coraciadæ*

- A.—Plumage gay; bill twice as long as broad; throat and foreneck lilac with buff shaft-stripes.  
*Coracias benghalensis indica* (The Southern Indian Roller).
- B.—Plumage more sober; bill as broad as long; throat and foreneck washed with royal blue in adults.  
*Eurystomus orientalis orientalis* (The Indian Broad-billed Roller).

## 134. CORACIAS BENGHALENSIS INDICA

## The Southern Indian Roller

*Dumbonā, dunkawuluwā*, Sinhalese ; *panan-kākai, kotta-kili*, Tamil.

*Coracias indica* Linn. S. N. xii. ed. 1. p. 159. (1766) (Ceylon); Legge p. 281; Oates & Blan. Vol. III. p. 103.

*Description*.—A small patch above the nostrils sandy buff, at times tinged with violet; crown and nape bluish green, tinged above the eyes with turquoise blue; hind-neck and sides of neck brownish lilac; back, scapulars, and innermost wing quills dull greenish brown; lower back and tail coverts deep purple blue, the former tinged with greenish blue; middle tail feathers dark, dull green washed with purple blue at the base; rest of tail deep purple blue with a broad band of turquoise blue on the outer half; innermost wing coverts deep purplish blue, most of the remainder greenish blue, the primary coverts, the tips of the secondary coverts, and the edge of the wing being turquoise; wing quills deep purplish blue, tipped with dusky brown and with a broad band of turquoise across the six outer primaries; chin sandy buff; throat and the sides of the head purplish lilac with broad, pale shaft-stripes; breast lilac brown; abdomen, wing-lining, thighs, and lower tail coverts pale greenish blue.

Bill blackish brown; iris grayish brown; eyelids and naked skin round eye pale orange yellow; legs and feet brownish yellow.

Length 13; wing 7; tail 4.75; tarsus .9; bill from gape 1.70.

*Distribution*.—Found chiefly in the drier northern half of the Island; during the north-east monsoon it wanders south to the Western Province and Ratnapura District, where it also occasionally breeds. This subspecies occurs in suitable localities in S. India, but avoids the hills, thick forests, and deserts. It is replaced in North India by an allied subspecies which extends westwards to Asia Minor.

*Habits*.—Generally seen in open compounds, round paddy fields, or near the borders of tanks. It is extremely fond of perching on dead trees or telegraph wires. The cry is a harsh grating call. The bird feeds largely on insects. The breeding season extends from January to June. The nest is a hole, generally in a rotten tree, sometimes in an old wall. It is lined with a modicum of grass or vegetable fibre. The eggs generally number four, sometimes five. They are almost round and of a glossy china white. Average size of a small Ceylon series 1.38 by 1.10.

## 135. EURYSTOMUS ORIENTALIS ORIENTALIS

## The Indian Broad-billed Roller.

*Puluppōrukki*, Tamil.

*Coracias orientalis* Linn. S.N. I. p. 159. (1766) (India); *Eurystomus orientalis*, Legge p. 285; Oates & Blan. Vol. III. p. 107.

*Description*.—Head, face, and chin rusty black, slightly tinged on the nape with green; rest of upper plumage dark, dull green, with a tinge of dark blue on the rump, tail coverts, and wing coverts; primary coverts deep blue; quills black, washed with deep blue on the outer webs; outer primaries crossed with a broad band of turquoise blue; tail black, washed on the outer half with deep blue, the basal portion of the central feathers shading into the dark blue green of the tail coverts; throat and fore-neck rusty greenish black; a patch of varying size on the centre of the throat and neck washed with royal blue, which is brightest on the shafts of the feathers; remainder of lower parts greenish blue, darker on the breast.

Bill deep orange red, the extreme tip blackish red, in young birds wholly black; iris dark brown; legs and feet orange red.

Length 11·5; wing 7·25; tail 4; tarsus ·75; bill from gape 1·5.

*Distribution*.—One of our rarest residents; has been found in thick forest in various scattered localities in the Island.

The southern form of this species—*E. laetior* of the British Museum Catalogue—occurs in Ceylon and Travancore. It is slightly darker than the northern forms, which range along the base of the Eastern Himalayas through Burma to China and Malaya. Stuart Baker however gives sub-specific distinction only to the Andaman race, which is larger and has a larger bill.

*Habits*.—Essentially a forest bird, frequenting tall, dead trees in deep jungle. The food appears to consist mainly of wood-boring beetles. In Travancore this species has been found breeding from September to April in a hole in a large tree at a great height from the ground. The three white eggs measure about 1·38 by 1·15, but vary considerably in shape and size.

## Sub-order MEROPES

### Family MEROPIDAE

#### *Bee-eaters*

The Bee-eaters are a single Family found throughout the greater part of the Old World. They are slim-built, smallish birds, the plumage—with certain African exceptions—being mainly, or largely, of some shade of green. The bill is long, slender, pointed, and gently curved; the wings are long and pointed; the legs and feet are weak. The three front toes are syndactylic, i.e., united at their bases; between the inner

and middle toes along the basal joint ; between the middle and outer toes up to the last joint. In all Ceylon species the nostrils are partially covered with plumes, and there are a few, small, rictal bristles at the base of the bill.

All species feed on insects, chiefly bees and wasps, which they capture on the wing with an audible snap of the beak. They generally keep a lookout for their prey from a perch on a telegraph wire, railing, or twig, and after making a short swoop return to their starting point. The nest is a small, unlined chamber at the end of a long burrow excavated in the bank of a river, or roadside ditch. At times the little tunnel is driven at a gentle slope into almost level ground. The eggs are white, glossy, and nearly globular. Three species are found in Ceylon ; one is migratory, two belong to the genus *Merops*, one is a *Melittophagus*.

*Key to Ceylon Meropidae*

A.—Middle pair of tail feathers in adults much longer than the others.  
Genus *Merops*.

(a) Wing 3·65 ; chin and throat bluish green.

*Merops orientalis orientalis* (Common Indian Bee-eater).

(b) Wing 5·25 ; chin yellow, throat chestnut.

*M. superciliosus javanicus* (Blue-tailed Bee-eater).

B.—Middle pair of tail feathers not elongated. Genus *Melittophagus*.

Wing 4·2 ; chin and throat saffron yellow, fore-neck chestnut.

*M. erythrocephalus erythrocephalus*. (Chestnut-headed Bee-eater).

### 136. MEROPS ORIENTALIS ORIENTALIS

#### The Common Indian Bee-eater

*Kurumini-kurullā*, Sinhalese ; *kattālan-kuruvi*, *panchānkam* (E. Province), Tamil

*Merops orientalis* Lath. Ind. Orn. Suppl. p. xxxiii. (1801) (Maharatta) (India) ; *M. viridis*, Legge p. 309 ; Oates & Blan. Vol. III. p. 110.

*Description*.—Upper plumage green with a bronze tinge, most pronounced on the crown and nape, which at times are almost golden brown ; tertiaries, rump, and tail coverts often washed with greenish blue ; wing quills pale rufous on the inner, and greenish bronze on the outer webs, the tips and shafts black ; tail bronze green, the outer half of the long central feathers and the tips of the remainder black ; a black band from the nostrils through the eye to the ear coverts ; chin, cheeks, and throat greenish blue ; a black band across the fore-neck ; lower parts green, the lower tail coverts and vent much paler.

Bill black; iris red; legs and feet brown.

Length 9·5 to 10·5; wing 3·65; tail, outer feathers 2·85, central feathers up to 5·25; tarsus ·4; bill from gape 1·4.

*Distribution*.—Common throughout the drier parts of the low-country, especially in the sandy tracts round the coast in the north-west and south-east. It avoids the damp low-country, and seldom ascends higher than 1,000 feet. It occurs almost throughout India. Other sub-species are found in Burma, Persia, and Beluchistan.

*Habits*.—Those of the family. May commonly be seen perching on a low rail, or low branch, from which it makes frequent short flights. The cry is a not unpleasant chirrup. I have often seen it hawking for insects over small sheets of water. The breeding season is from April to August. The nest hole is run almost horizontally into any little hummock of sandy soil, frequently along the side of a road, or path. Three to five eggs are laid in a small, circular chamber at the end of a passage 2 to 4 feet in length. They are glossy white, almost spherical and average ·79 by ·70.

### 137. MEROPS SUPERCILIOSUS JAVANICUS

The Blue-tailed Bee-Eater (Pl. VIII. Fig. 3.)

*Kurumini-kurullā*, Sinhalese; *kattālan kuruvi*, *panchānkam* (E. Prov.) Tamil.

*Merops javanicus* Hors. Trans. Linn. S. 1821, p. 171 (Java); *M. philippinus* Legge p. 306; Oates & Blan. Vol. III. p. 111.

*Description*.—Upper plumage, together with the wing coverts brownish green, darkest on the crown and nape, and shading on the lower back and tertiaries into the bright blue green of the rump and tail; the elongated central pair of tail feathers tipped with black; primary and secondary quills pale cinnamon on the inner margin, the remaining portion bronze green, brightest on the outer web, tips blackish; from the nostrils through the eye to the ear coverts runs a black streak, bordered above by a narrow, pale blue line and below by a broader line of the same colour; chin pale yellow, throat chestnut, shading on the breast into green, which again passes into pale blue on the vent and lower tail coverts; wing-lining light rufous brown.

Bill black; iris crimson; legs and feet blackish.

Length about 12; wing 5·25; tail, outer feathers 3·5; central pair 5 to 6; tarsus ·5; bill from gape 2.

*Distribution*.—A migrant species, arriving about the end of August and leaving in April. It spreads fairly well all over the low-country, and is found on the ~~patana~~ up-country to about 5,000 feet. It occurs

over a great part of the Indian Empire, being partially migratory in many districts, and extends eastwards to Java.

*Habits*.—In Ceylon it is found chiefly in open country, or about paddy fields, swamps, and hill patanas. Its habits are much the same as those of the last species. Its note is rather fuller and louder. Just before leaving the Island it collects in large flocks. It has not been known to breed in Ceylon.

### 138. MELITTOPHAGUS ERYTHROCEPHALUS ERYTHROCEPHALUS

#### The Chestnut-headed Bee-eater

*Kurumini-kurullā*, Sinhalese; *kattālan-kuruvi*, *panchānkam* (E. Prov.) Tamil.

*Merops erythrocephalus* Gmel. S.N. i. p. 463 (1788) (India); *M. swinhoii*, Legge p. 312; *Melittophagus swinhoii*, Oates & Blan. Vol. III. p. 114.

*Description*.—Forehead, head above the eyes, hind-neck, and upper back chestnut; a black streak runs from the gape of the bill under the eye to the ear-coverts; wing, wing coverts, and scapulars green, the primary and secondary quills with black tips and rufous inner margins; rump and upper tail coverts pale blue; tail green, the margins and tips of all but the central pair of feathers blackish; chin and throat saffron yellow; fore-neck chestnut, bordered below by a black gorget band; breast greenish, the tips of the feathers across which the black gorget runs washed with pale yellow; abdomen and lower tail coverts bluish green.

Bill black; iris crimson; legs and feet dark brown.

Length 8·5; wing 4·2; tail 3·25; tarsus ·43; bill from gape 1·7.

*Distribution*.—Rather locally distributed; it is common on the banks of the Gin-ganga in the Galle District, and on some rivers in the Western Province. Scattered colonies are also found in the North-Western Province, Saharagamuwa, and Hambantota District, while a few birds may be seen here and there in the northern forest tract. It is more common in the central hill zone up to a moderate height. It occurs on the Malabar coast and the Nilgiris, and also ranges from the Lower Himalayas through Assam and Burma to Malaya.

*Habits*.—This species is generally to be found on the banks of rivers, round tanks, or in forest country. It generally perches on the upper branches of trees. The birds occasionally fish for insects and small fry on the surface of water. They breed about April, excavating a long tunnel in the sandy bank of a river, or tank bund. The eggs are laid in a circular chamber at the end of the passage. They are glossy white and spherical, averaging ·87 by ·76.

## Sub-order HALCYONES

## Family ALCEDINIDAE

*Kingfishers*

The habits and outward appearance of the Kingfishers are too well known to require much description. The Sub-order consists of a single family, which ranges over the whole world, though only one genus—*Ceryle*—is found in America. The bill is long, stout, and pointed, the wings are moderate, the tail is short and consists of twelve feathers, the legs and feet are weak, the formation of the toes is the same as in the Rollers. Most of the species are fish feeders, but some members, including one Ceylon species, *Halcyon smyrnensis generosa*, may be seen away from water feeding largely on land insects, small lizards, &c. The nest, like that of the Bee-eater, is a small, round chamber at the end of a tunnel excavated in a bank, generally near water. As a rule, the round, white, glossy eggs are laid on the bare floor, but in some cases on a lining of fish bones. Seven species, belonging to five genera, are found in the Island, but only four are common, two being excessively rare, while a third is by no means abundant.

*Key to Ceylon Alcedinidae*

- A.—Plumage black and white; length 11·7.  
*Ceryle rudis leucomelanura* (Indian Pied Kingfisher).
- B.—Cap transversely barred black and blue. Genus *Alcedo*.
  - (a) Cap light blue and black; a rufous patch from eye to ear coverts; length 6·5.  
*Alcedo atthis taprobana* (The Ceylon Kingfisher).
  - (b) Cap deep blue and black; no rufous patch from eye to ear coverts; length 6·5.  
*Alcedo coerulescens asiatica* (Beavan's Kingfisher).
- C.—Cap orange red, washed with violet; only three toes; length 5·35.  
*Ceyx tridactylus tridactylus* (Indian Three-toed Kingfisher).
- D.—Cap and face dingy brown; length 15.  
*Rhamphalcyon capensis gurali* (Brown-headed Stork-billed Kingfisher).
- E.—Head and face chocolate brown; no white collar; length 11.  
*Halcyon smyrnensis generosa* (Ceylon White-breasted Kingfisher).
- F.—Crown and cheeks black; a white collar; length 12.  
*H. pileata* (Black-capped Kingfisher).



## 139. CERYLE RUDIS LEUCOMELANURA

## The Indian Pied Kingfisher

*Gōmera-pilihuduwā*, Sinhalese ; *mīn-kotti*, Tamil.

*Ceryle leucomelanura* Reichen. Handl. Alced. p. 21. (1851) (Ceylon); *C. rudis*, Legge p. 288 ; *C. varia*, Oates & Blan. Vol. III. p. 119.

*Description*.—Male : Crown and nape black, streaked with white ; rest of upper plumage, including wing coverts and wings, black, mottled or barred with white ; tail feathers white on the base and tip, remaining portion black ; cheeks, wing-lining, and most of lower plumage white ; the fore-neck is often spotted with black, and there are two black bands across the breast, the upper being the broader, while the flanks are more or less spotted with black.

Females lack the lower black gorget, while the upper broad band is imperfect, leaving the centre of the breast white.

Bill black ; iris brown ; legs and feet blackish.

Length 11·7 ; wing 5·4 ; tail 3 ; tarsus ·4 ; bill from gape 2·75.

*Distribution*.—Fairly common on lagoons, tanks near the sea coast, and the lower reaches of our rivers. It is also found on some of the larger inland tanks, but its occurrence elsewhere in the Island is rare. It is common throughout the plains of India and Burma, being replaced further east by an allied sub-species which ranges from Assam to China.

*Habits*.—This species avoids forest streams, and is most plentiful on brackish lagoons and large sheets of fresh water. Unlike many other Kingfishers, it hovers over the water and plunges perpendicularly on its prey, instead of darting at an angle from a fixed perch. The breeding season is about May. The nest hole is driven for some distance into the bank of a river, tank bund, or water channel. The eggs, generally four in number, are of the usual spherical form and glossy white colour. Average size 1·15 by ·92.

## 140. ALCEDO ATTHIS TAPROBANA

## The Ceylon Kingfisher

*Mal-pilihuduwā*, Sinhalese ; *mīn-kotti*, Tamil.

*Alcedo isipida* var. *taprobana* Kleinachm. Orn. Mber, ii, p. 126 (1894) (Ceylon); *A. bengalensis*, Legge p. 292; *A. isipida*, Oates & Blan. Vol. III. p. 122.

*Description*.—General colour above greenish blue ; crown and nape with fine, transverse bands of dusky black ; a rust coloured stripe runs from the base of the upper mandible to the ear coverts, terminating in a whitish patch on the side of the neck ; a broad, blue stripe runs from the lower mandible down each cheek ; centre of back, rump, and upper

tail coverts bright cobalt blue; wing coverts greenish blue, each of the feathers of the lesser and median coverts with a brighter blue spot; wing quills brown, with greenish blue outer edges; tail blue above, dusky brown beneath; chin and throat whitish; rest of lower surface rusty orange brown.

Bill, upper mandible black, lower mandible generally reddish yellow; iris deep brown; legs and feet coral red.

Length 6.5; wing 2.75; tail 1.3; tarsus .35; bill from gape 1.8.

*Distribution*.—Common practically all over the Island wherever there is water, stagnant, or running. The Ceylon form of this little Kingfisher is now classed as a separate sub-species. Various geographical races of the species range from the British Isles to Eastern Asia.

*Habits*.—This little Kingfisher lives mainly, if not entirely, on small fish, and is seldom seen away from water. It generally darts on its prey from a fixed perch, but occasionally hovers. The flight is swift and low; the cry is a shrill whistling note. The birds are usually met with in pairs. The breeding season lasts from February till about June, while occasionally birds breed as late as November. The nest hole is usually in a bank close to the water's edge. The passage is about 2 to 4 feet in length, and the nest chamber 6 inches in diameter. The eggs are of the usual type, and measure about .8 by .68.

#### 141. *ALCEDO COERULESCENS ASIATICA*

##### Beavan's Kingfisher

*Mal-pūihuduwā*, Sinhalese; *mīn-kottī*. Tamil.

*Alcedo asiatica* Swains. Zool. Illust. Sec. i. (1821) (Bengal); not in Legge; *A. beavani*, Oates & Blan. Vol. III. p. 124.

*Description*.—The colouring is deeper and richer than in the preceding species. Crown, nape, and hind-neck black with narrow cross bands of royal blue; lores rufous, the lower border black; sides of head and cheeks royal blue; a whitish patch on the side of the neck behind the ear coverts; middle of back and rump deep cobalt blue; upper tail coverts deeper, almost royal blue; scapulars, wing coverts, and wings blackish brown, the inner quills washed with royal blue, and most of the wing coverts tipped with a spot of deep cobalt blue; tail feathers dusky brown at the base, deep purplish blue at the tip; chin and throat buffy white; remainder of lower plumage deep chestnut.

Bill dusky brown; lower mandible paler; iris dark brown; legs and feet red.

Length 6.5; wing 2.75; tail 1.35; tarsus .35; bill from gape 1.8.

*Distribution*.—A fairly recent addition, first discovered by A.P. Greene, I believe near Dambulla, in 1903. A. L. Butler found it several

times near Medagama, in Uva. It should be looked for on forest streams among the lower hills. It is occasionally seen in Travancore and a few other localities in South and Central India; commoner, but locally distributed, at the foot of the Eastern Himalayas.

*Habits*.—A shy bird, keeping to lonely streams and tanks in the heart of the jungle. It probably breeds in the Island. The nesting habits are similar to those of the last species. The eggs, four to six in number, average about .78 by .69.

#### 142. CEYX TRIDACTYLUS TRIDACTYLUS

##### The Indian Three-toed Kingfisher

*Podi-pilihuduwa*, Sinhalese; *mān-kottī*, Tamil.

*Alcedo tridactyla* Pall. Spec. Zool. p. 10. (1769) (India); *Ceyx tridactyla*, Legge p. 303; Oates & Blan. Vol. III. p. 127.

*Description*.—A V-shaped mark of black, washed with purple, on the forehead at the base of the upper mandible; crown, nape, hind-neck, lower back, rump, and upper tail coverts orange-red with a metallic lilac gloss, which is strongest behind the eye and on the rump and tail coverts; upper back black, washed with brilliant cobalt blue; wings dark brown, the coverts tinged with blue; the edge of the wing, the wing-lining, and the inner margin of wing quills rufous; tail orange red; there is a black spot in front of the eye and a deep blue spot behind the ear coverts; lores, cheeks, ear coverts, and lower parts from the fore-neck orange yellow; chin and throat white tinged with yellow.

Bill, legs, and feet coral red; iris brown.

Length 5.35; wing 2.2; tail .9; tarsus .35; bill from gape 1.5.

*Distribution*.—Occurs sparingly in the dry and medium zones up to about 2,000 feet. It is found rarely in scattered localities in the Indian Peninsula, also in Lower Bengal and Burma.

*Habits*.—This beautiful little species is occasionally met with on lonely streams. It is generally seen singly, or in pairs, and at times wanders away from water. It has been found breeding in the Mannar District. The nest hole was excavated in the side of a small water-course. The eggs, three in number, were more oval than is the case with most Kingfishers, measuring .77 by .66.

#### 143. RAMPHALCYON CAPENSIS GURIAL

##### The Brown-headed Stork-billed Kingfisher

*Waturā-ānduwā*, *maha-pilihuduwa*, Sinhalese; *mān-kottī*, *kukuluppa*, Tamil. *Alcedo gural* Pearson, J.A.S.B. x 1841. p. 633. (Bengal); *Pelargopsis gural*, Legge p. 295; Oates & Blan. Vol. III. p. 129.

*Description*.—Head, face, hind-neck, and ear coverts dull brown; a collar round the back of the neck, together with the whole of the lower plumage, orange buff, deepest on the flanks and abdomen, and palest on the chin and throat; upper back and scapulars with the lesser wing coverts dull bluish green; the greater wing coverts, the tertiaries, the outer webs and tips of the secondaries, the larger tail coverts, and tail, slightly bluer; the primary quills, the inner webs of the secondaries and the under surface of the tail dull brown; the lower back, rump, and lesser tail coverts bright turquoise blue.

In the young birds the buff feathers on the collar and breast have darker edges.

Bill dark blood red; iris brown; legs and feet coral red.

Length about 15; wing 5.75 to 6.25; tail about 4; tarsus .75; bill from gape 3.75.

*Distribution*.—Occurs more or less all over Ceylon on rivers, streams, brackish lagoons, and tanks. Commonest in the northern half of the Island. It is found throughout India.

*Habits*.—Our largest Kingfisher. It is always found near water, generally in the neighbourhood of large trees, or, on lagoons, among the mangrove swamps. The cry is a loud, harsh laugh. It feeds on frogs, fish, and crabs. The flight is straight and powerful. The usual nest hole is made in the sandy banks of rivers and streams, generally in dense jungle, or in the bund of a lonely tank. It appears to be always made in a bank well covered with bushes, at least in the immediate vicinity of the nest. The eggs are typical Kingfisher's eggs in shape and texture, and measure about 1.50 by 1.18.

#### 144. HALCYON SMYRNENSIS GENEROSA

The Ceylon White-breasted Kingfisher (Pl. IX. Fig. 2.)

*Pilihuduwa*, Sinhalese; *mān-kotti*, Tamil.

*H. generosa* Madar, Ann. Mus. Hun. ii. p. 85 (1904) (Ceylon); *H. smyrnensis*, Legge p. 298; Oates & Blan. Vol. III. p. 132.

*Description*.—The head, cheeks, hind-neck, sides of neck, flanks, and lower parts from the breast downwards chocolate brown; the chin and throat to the centre of the breast white; back, scapulars, tertiaries, outer portion of secondaries, greater wing coverts, rump, and tail blue, brightest on the rump and tail coverts; median wing coverts black, lesser wing coverts chestnut; inner margin of secondaries and the end half of primaries black; basal portion of primaries white on the inner and blue on the outer web.

Bill dark blood red; iris brown; legs coral red.

Length 11; wing 4.5; tail 3.3; tarsus .5; bill from gape 2.6.

*Distribution*.—Common all over the Island. The Ceylon race is ranked as a separate sub-species which probably also occurs in S. Travancore. The species, divided into several sub-species, ranges from Asia Minor to China.

*Habits*.—May be seen on rivers, swamps, and paddy fields. It is by no means confined to the neighbourhood of water, and is not uncommon in Colombo gardens. It occasionally fishes, but feeds chiefly on insects, small lizards, and crabs. The call is a harsh, bubbling scream, generally uttered while flying. As the breeding season extends from January to August, there are probably several broods during the year. The nest is the usual hole in the bank of a stream, pond, or ditch. The eggs are of the usual type, and average 1.14 by 1.04.

#### 145. HALCYON PILEATA

##### The Black-capped Kingfisher

*Pihiduwō*, Sinhalese; *mīn-kottī*, Tamil.

*Alcedo pileata* Bodd. Tabl. Pl. Enl. p. 41 (1783) (Canton); *Halcyon pileata*, Legge p. 301; Oates & Blan. Vol. III p. 133.

*Description*.—Crown, nape, and cheeks black; a white collar round the neck; the feathers of the upper back adjoining the collar and the wing coverts are black; the general hue of the rest of the upper plumage, including the tail, tertiaries, and the outer webs of the secondaries, is purplish blue, brightest on the lower back and rump; the inner webs and the tips of the secondaries are black; the primaries are black on the terminal half, the basal portion being white on the inner and bluish white on the outer web; chin, throat, and middle of breast white, shading into rusty buff on the remainder of the lower parts; under surface of tail black.

In young birds the breast feathers have dusky black fringes.

Bill deep coral red; iris dark brown; legs and feet dull red.

Length 12; wing 5.1; tail 3.25; tarsus .6; bill from gape 3.0.

*Distribution*.—Solitary specimens have been obtained in the Northern, Eastern and Western Provinces. This species has been found in various localities throughout the Indian Peninsula, the Ganges delta, Assam, and Burma, and ranges eastwards through Malaya to China. It is extremely rare over most of its habitat, but turns up unexpectedly all over India, generally near the coast, but at times far inland. It is common during the breeding season in Hong Kong.

*Habits*.—Occasionally seen by fresh water, but generally found on brackish lagoons and among mangrove swamps, where it feeds upon the crabs, which swarm in the mud. It may possibly be found breeding in Ceylon, as the nest has been taken in Travancore in February and

March. The nest is the usual hole, generally in the sandy banks of streams near the seashore, but occasionally on the banks of forest streams.

The eggs are of the usual round shape and glossy texture, four to six in number, and measure about 1.15 by 1.

### Sub-Order Sub-order BUCEROTES

#### Family BUCEROTIDÆ

##### *Hornbills*

The Hornbills are a Family of large, ungainly, forest birds, which are found in Africa, Tropical Asia, and New Guinea. They derive their English name from the enormous bill, which as a rule, is surmounted by a hollow, or cellular, horny casque. In some cases, however, including that of the smaller of the two species found in Ceylon, the casque is wanting. Other peculiar features are that the eyelids are furnished with strong lashes, while the wing-lining does not cover the bases of the quills. The feet are fairly large and stout, and formed like those of the Rollers. The nidification is extraordinary, and the accounts of it were long regarded as travellers' fairy tales. At the breeding season, before the eggs are laid, the female is walled up in the hollow of a tree by means of a plaster formed of earth mixed with the bird's droppings, or of the droppings alone. An opening is left, through which the male feeds her and there she remains imprisoned, apparently until the young are fledged. The eggs when new laid are white, but, as may be imagined, they soon get discoloured as incubation proceeds. The young are naked when hatched. Hornbills feed largely on fruit, but also to some extent on small lizards, scorpions, insects, &c. They are frequently, but erroneously, called "Toucans," a name which applies to a Family of large-billed birds of brilliant plumage, akin to the Barbets, and found only in South America.

#### *Key to Ceylon Bucerotidae*

A.—Size large; length about 36; a compressed casque pointed in front.

*Anthracoceros coronatus coronatus* (Malabar Pied Hornbill).

B.—Size smaller; length about 23; no casque.

*Lophoceros gingalensis* (Ceylon Hornbill).

## 146. ANTHRACOCEROS CORONATUS CORONATUS

## The Malabar Pied Hornbill

*Poruwā-kēndettā*, Sinhalese ; *irattai-chondu-kuruvi*, Tamil.

*Buceros coronatus* Bodd. Tabl. Pl. Enl. P. 53 (1783) (Malabar); *Anthracoseros coronatus*, Legge p. 272 ; Oates & Blan. Vol. III. p. 144.

*Description*.—The head, neck, and upper parts with the wing and the middle pair of tail feathers are glossy greenish black ; the remainder of the tail and the under parts from the breast downwards white ; the primaries—except the first two quills, which are small—and secondaries with broad, white tips, the primaries with whitish bases.

The bill is large and curved, with serrated edges ; in adults it is surmounted by a large, horny casque, which slopes backward over the crown, and in front runs into a pointed projection overhanging its line of junction with the bill. The casque and bill are pale yellow, with a black patch at the base of the mandible and a large, black patch covering most of the upper portion of the casque. In males the back of the casque is also black. Iris, in males orange red, in females brown ; naked skin round eye, blackish in males, whitish in females ; bare skin of throat flesh coloured ; legs and feet grayish.

In young birds the contour of the casque is not developed, but grades into the upper mandible, giving the beak a distinctly Roman-nosed appearance ; there are patches of bare skin on the thighs and hind-neck, which remain unfledged until after the wing and tail quills are fully formed.

Length about 36 ; wing 13 ; tail 13 ; tarsus 2.5 ; bill from gape 7. Females are slightly smaller.

*Distribution*.—Found in the drier forest zone of the low-country, ascending the foothills to about 2,500 feet. Commonest in the northern half of the Island. In India it occurs at the foot of the Western Ghats and in the forests of South-west Bengal, Orissa, and the eastern Central Provinces.

*Habits*.—Generally found in small troops in heavy forest. It has a laboured, ungainly, dipping flight, alternately flapping its wings and sailing. The note is loud and harsh. The curious nesting habits are described in the remarks on the family. The breeding season appears to be from March to June. The eggs are two to four in number, white at first, but much discoloured as incubation proceeds. They measure about 2 by 1.5.

147. **LOPHOCEROS GINGALENSIS****The Ceylonese Hornbill**

*Këndettā*, Sinhalese; *irattai-chondu-kuruvi*, Tamil.

*Buceros gingalensis* Shaw, Gen. Zool. viii, p. 37 (1811) (Ceylon); *Tockus gingalensis*, Legge p. 275; *Lophoceros gingalensis*, Oates & Blan. Vol. III. p. 157.

*Description*.—Crown and nape ashy brown with pale shaft-stripes; ear coverts slightly darker; rest of upper plumage ashy gray, the wing coverts with darker edges; wing quills black, the middle primaries with white tips and the secondaries with gray outer margins; tail feathers dusky with a greenish tinge, all but the central pair with broad white ends; in old birds the three outer pairs become entirely white; lower parts grayish white, becoming lighter with age; vent and lower tail coverts dingy rufous.

Bill curved and not surmounted with a casque; in adult males it is yellowish white, with a black patch at the base of the upper mandible from the gape to the nostril, and another indistinct patch beneath the lower mandible. Females have the bill grayish black, with a long white patch on the lower portion of the upper mandible. Iris red; orbital skin and eyelashes black; legs and feet greenish lead colour.

*Length* 23; *wing* 8; *tail* 9; *tarsus* 1·7; *bill from gape* 4·25. *Females* slightly smaller, and with shorter bills.

*Distribution*.—Peculiar to Ceylon; fairly common all over the low-country wherever there is forest. It ascends the hills to about 4,000 feet.

*Habits*.—A rather shy, forest bird, keeping to the tops of trees. The flight is slow and dipping. The cry is rather a harsh laugh, starting with the syllable "kaa," which is often repeated, at first slowly, then quicker and quicker. It breeds from April to August in the fashion peculiar to the family. The two or three dingy white eggs measure about 1·62 by 1·29.

Sub-order **UPUPAE**Family **UPUPIDAE***Hoopoes*

The Hoopoes are confined to a single Family and genus, which ranges through the temperate and tropical parts of the Old World. In structure and nesting habits, though not in appearance, they are closely re-



lated to the Hornbills. They are all birds of moderate size, about one foot in length. The bill is long and slender, and curves from the base. There is a large, conspicuous crest on the crown, folded, or erected at will. The wings are rounded, the tail moderate in length, and the legs short. Hoopoes feed on the ground, scratching and probing for grubs and insects. The females, though not walled into nest holes like the Hornbills, sit very close, and are fed entirely by the males during the breeding period. Only one species occurs in Ceylon.

#### 148. UPUPA EOPS CEYLONENSIS

**The Ceylon Hoopoe** (Pl. IX. Fig. 1.)

*Porowā-kurullā*, Sinhalese; *chāval-kuruvī*, Tamil.

*Upupa ceylonensis* Reich. Handb. Spec. Orn, p. 320 (1851-54) (Ceylon); *U. nigripennis*, Legge p. 278; *U. indica*, Oates & Blan. Vol. III. p. 161.

*Description*.—Head, crest, hind-neck, throat, upper back, and breast cinnamon brown; the crest feathers are broadly tipped with black, and the breast has a vinaceous tinge; the lower back, wings, and tail are black barred with white, the tertiaries are tinged with brown and barred and tipped with buff; the abdomen is whitish, more or less streaked with brown, the vents and under tail coverts are white, the thighs have often a rufous tinge.

Bill brown black, pinkish at the base; iris brown; legs and feet lead colour.

Length 11·5; wing 5·25; tail 3·75; tarsus ·85; bill from gape 2·3.

*Distribution*.—Fairly common in the Northern Province, occasionally wandering as far south as Anuradhapura and Chilaw; occurs in portions of the park country in the Eastern Province, and on the Uva patanas, while it is by no means rare in the Hambantota District eastwards of Ranna. The present sub-species is found in S. India as far N. as Bombay and Orissa.

*Habits*.—This bird is found chiefly in open country, grazing grounds, and patanas, and is generally seen on the ground searching for insects. The breeding season appears to last from November to April. The birds nest in holes in trees, banks, or walls. The nest chamber is usually very insanitary. The eggs, four to seven in number, are of a pale bluish, or greenish white, and measure about ·97 by ·66.

## Order V. MACROCHIRES

### *Swifts, Nightjars, and Frogmouths*

The Swifts, Nightjars, and Frogmouths are here grouped together in the above Order, which also includes the Humming Birds, *Trochilidae* and the Oil Birds, *Steatornithidae*, two Families, which are confined to the New World. All the members of the Order have short bills with broad gapes, and live on insects captured while on the wing.

There are three Indian Sub-orders: *Micropodes*-Swifts; *Caprimulgi*-Nightjars; and *Podargi*-Frogmouths. Each Sub-order consists of a single Family.

## Sub-Order MICROPODES

### Family MICROPODIDAE

#### *Swifts*

Outwardly Swifts resemble Swallows, in each case the form having been specialized for the purpose of a swift and enduring flight. Anatomically there are considerable differences. In the structure of the sternum, feet and wings, the Swifts are Picarian, while the Swallows are typically Passerine. All Swifts have ten tail feathers, as against twelve in the Swallows. The primary wing quills are very long and curved, the secondaries extremely short. The bill is small and hooked at the tip, while the gape is broad. The hind toe is either directed forwards, or is more or less reversible. Swifts are aerial in their habits, and feed entirely upon insects captured on the wing. They are found all over the world, except in Arctic, or Antarctic regions. Their powers of flight are enormous, and they often cover immense distances in the course of a day's wanderings. All our species are resident, or mainly so. The nidification varies, but all species lay white eggs, and in almost all cases the materials of the nest are cemented together with hardened saliva, which is also used to glue the nest itself to the surface to which it is attached.

The family is divided into three Sub-families:—

(1) *Micropodinae*.—The true Swifts, in which the tarsus is feathered, and all the front toes have but three phalanges or joints.

(2) *Chaeturinae*.—Spinetails, &c., have the normal number of phalanges in the three front toes, i.e. three in the second toe, four in the third, and five in the fourth. In most forms, including both our Ceylon species, the tarsus is naked.

(3) *Hemiprocninae*.—Crested Swifts differ from the two preceding Sub-families, in that the closed wings only just reach the end of the tail, instead of extending far beyond it, while the head is crested.

#### Sub-family MICROPODINAE

##### *True Swifts*

The typical Swifts are represented in Ceylon by three species, belonging to two genera.

##### *Key to Ceylon Micropodinae*

A.—All four toes directed forwards. Genus *Micropus*

(1) Size large; wing 8.25; tail deeply forked.

*Micropus melba melba* (Alpine Swift).

(2) Size smaller; wing 5.20; a white band across rump; tail almost square.

*M. affinis affinis* (Common Indian House Swift.)

B.—Toes arranged in pairs; first and second toe pointing inwards, third and fourth outwards; size small; wing 4.4; tail deeply forked; no white on rump.

*Tachornis batassiensis batassiensis* (Palm Swift).

#### 149. MICROPUS MELBA MELBA

##### The Alpine Swift

*Wēhi-kihiniyā*, Sinhalese.

*Hirundo melba* Linn. Syst. Nat. i. p. 192 (1758) (Gibraltar); *Cypselus melba*, Legge p. 317; Oates & Blan. Vol. III. p. 164.

*Description*.—Upper parts, with the sides of the head and neck, mouse brown, darker on the wings and tail; chin, throat, breast, and abdomen white; a broad, dark brown band across the upper breast; wing-lining and lower tail coverts deep brown with whitish edges. In young birds all the dark feathers have whitish edges.

Bill black; iris brown; legs and feet livid brown.

Length 8.5; wing 8.25; tail about 3; tarsus .55; bill from gape

*Distribution*.—Resident in the higher hills, but being a bird of great powers of flight, it visits all parts of the Island. The sub-species ranges from the Alps, Southern Europe, and Northern Africa, eastwards to India.

*Habits*.—The birds roost and breed in colonies on high, rocky cliffs, and cover enormous distances during the day while hawking for insects. The cry is shrill and tremulous. The birds probably breed during April and May on some of the great precipices of the higher ranges in the Central Province and Uva. The nests are of the usual Swift type, and are composed of feathers, grass, &c., cemented with hardened saliva and glued to the surface of a rock. The eggs, three or four in number, are pure white, smooth, and slightly glossy. In shape they are elongated ovals, and average about 1.2 by .75.

#### 150. MICROPUS AFFINIS AFFINIS

##### The Common Indian House Swift

*Wēhi-likiniyā*, Sinhalese.

*Cypselus affinis* Gray, Ill. Ind. Zool. pl. 35 (1832) (Ganges); Legge p. 319; Oates & Blan. Vol. III. p. 168.

*Description*.—Head, wings, and tail dark brown with a slight gloss, the crown and nape slightly paler; back black with a greenish gloss; a broad, whitish band across the rump and sides; chin and throat whitish, with faint, black shaft-stripes; remainder of under surface blackish brown paler on the wing-lining and lower tail coverts.

Bill black; iris deep brown; legs and feet vinous brown.

Length about 5.3; wing about 5.20; tail 1.75; tarsus .4; bill from gape .75.

*Distribution*.—Occurs over the greater part of the Island. This sub-species is found all over tropical India.

*Habits*.—While there are regular breeding colonies in many parts of the low-country, as at Trincomalee, Anuradhapura, Damhulla, and Kirinde, in other parts this species appears to be a mere wanderer. It is, however, resident almost throughout the hills. It generally occurs in fairly large flocks, which may be seen high in the air hawking for insects. The cry is a shrill, weak scream. The breeding season is between March and July. The birds nest in colonies in rock caves, verandahs of buildings, &c. The nests are made of grass, straw, or feathers, cemented together with saliva, and glued to the roof, or walls of the nesting haunt. The eggs, generally two in number, are long, pure white ovals, measuring about .92 by .59.

## 151. TACHORNIS BATASSIENSIS BATASSIENSIS

## The Palm Swift

*Wéhi-lihiniyā*, Sinhalese; *ulu-vāra-kuruvi*, Tamil.

*Cypselus batassiensis* Gray in Griff. An. King. vii. p. 60. (1829) (India); Legge p. 322; *Tachornis batassiensis*, Oates & Blan. Vol. III. p. 170.

*Description*.—Upper parts ashy brown, the head slightly darker, the wings and tail dark brown with a slight gloss; under parts mouse gray, paler on the throat and chin.

Bill black; iris reddish brown; legs and feet vinous brown.

Length 5·20; wing 4·4; tail 2·6; tarsus ·4; bill from gape ·5.

*Distribution*.—Common all over the low-country and in the lower hills; most abundant in districts where the palmyra palm grows. Found in suitable localities throughout the Indian Peninsula.

*Habits*.—This little Swift prefers fields and open spaces round palmyra and coconut plantations, or, in the south of the Island, near areca palms. It never wanders far from the palms in which it roosts and nests. The breeding season appears to extend from October to April. The nest is placed on the under surface of a downward hanging palm leaf, and is a little, open pocket made of wild cotton and feathers glued together with saliva. Two or three eggs are usually laid. They are pure white, long ovals, measuring about ·71 by ·46.

## Sub-family CHAETURINAE

*Spinetails, &c.*

The Sub-family contains two Indian genera, each of which is represented in Ceylon by a single species. The Spinetails—genus *Hirundinapus*—are the fastest birds in existence. They take their name from the tail feathers, in which the shafts project beyond the webs and end in a spiny point. The genus *Collocalia* comprises the Swiftlets, whose nests, almost wholly composed of hardened saliva resembling isinglass, are much prized by the Chinese as an article of food.

*Key to Ceylon Chaeturinae*

A.—Size large; wing 8; tail nearly square; shafts of tail feathers ending in spines.

*Hirundinapus gigantea indica* (Brown-necked Spinetail).

B.—Size small; wing 4·6; tarsi naked; tail slightly forked; tail feathers normal; hind toe directed backwards and only partially reversible.

*Collocalia unicolor unicolor* (Indian Edible-nest Swiftlet).

## 152. HIRUNDINAPUS GIGANTEA INDICA

### The Brown-necked Spinetail

*Wēhi-lihiniyā*, Sinhalese.

*Chaetura indica* Hume, Str. F. I. p. 417 (1873) (Travancore); *C. gigantea* Legge p. 315; *C. indica*, Oates & Blan. Vol. III. p. 173.

*Description*.—The crown, the sides of the head, the nape, wings the sides of the rump, upper tail coverts, and tail black, with a metallic gloss of green and steel blue; the back, scapulars, and rump pale brown palest on the centre of the back; a deep velvet black spot in front of each eye, and a white spot on each side of the forehead, bordering the upper mandible; chin and centre of throat whitish; lower parts umber brown with a faint gloss; under tail coverts and a streak along the flank white.

Bill black; iris dark brown; legs and feet fleshy purple.

Length 9; wing 8; tail 2·7; tarsus ·65; bill from gape 1.

*Distribution*.—Resident in the hills, occasionally wandering over the whole island. It occurs in Southern India, and also ranges from Assam eastwards throughout Burma.

*Habits*.—This species may be seen wheeling at enormous speed round hillsides. Often after rain it wanders far over the low-country in the course of a day's flight. The nesting habits are peculiar. It has been found breeding in March and April on the Travancore hill inside green trees, of which the core is hollow down to the ground. The nest is a mere depression in the earth at the foot of the hollow core, and is lined with dry leaves and straw. The eggs, three to five in number, are pure white, and measure about 1·28 by 1. The shell is hard, and like porcelain in texture.

## 153. COLLOCALIA UNICOLOR UNICOLOR

### The Indian Edible-nest Swiftlet

*Wēhi-lihiniyā*, Sinhalese.

*Hirundo unicolor* Jerd. Madr. Journ. L. S. 1840. p. 238. (Coonoor); *C. francica*, Legge p. 324; *C. unicolor*, Oates & Blan. Vol. IV. p. 48.

*Description*.—Upper parts blackish brown, with a greenish gloss on back, wings, and tail; under parts mouse gray, the feathers of the lower breast and abdomen with darker shaft-stripes; tarsi quite naked.

Bill black; iris brown; legs and feet fleshy brown.

Length 4.65; wing 4.6; tail 2.1; tarsus .4; bill from gape .4.

*Distribution*.—Roosts and breeds in rock caves in the hill ranges, and also in the isolated hills of the low-country, as at Hiniduma and Ritigala. As it wanders a good deal in the course of a day's flight it may be seen almost anywhere in the Island. It also occurs in the South Indian hills and the Western Himalayas.

*Habits*.—This species is often seen in company with the Palm Swift hawking for insects over open ground, round tanks, &c. The breeding season varies in different localities between Christmas and April. The birds nest in large colonies. Of late years they have taken very kindly to the railway tunnels between Ohiya and Bandarawela. The nest is a half saucer, formed of clear, hardened saliva mixed with a little moss and glued to the wall of the cave. Two white eggs of the usual type are laid, measuring about .84 by .53.

[*Note*.—Another species of the same genus *C. francica francica*—The Little Gray-rumped Swiftlet is found in Mauritius and Isle de Bourbon and has been doubtfully recorded from Ceylon. It is about the same size, but is distinguished by the rump feathers, which are pale gray with dark shafts. This species keeps mainly to the coast and might be looked for on cliffs and rocks near the sea in the Southern and Eastern Provinces.]

#### Sub-family HEMIPROCININAE

##### *Crested Swifts*

This Sub-family consists of a single genus confined to India, Malaya, and the New Guinea region. Only one species occurs in Ceylon.

The Crested Swifts differ considerably from the other Sub-families. The tarsus is short and naked, and the closed wings do not extend beyond the tail, which is long and forked. The plumage is more silky than in other Swifts, and differs slightly in the two sexes. The feathers of the crown are elongated into a crest, which is raised, or depressed at will.

#### 154. HEMIPROCNE CORONATA

##### The Indian Crested Swift (Pl. IX. Fig. 3.)

*Wèhi-lhinyā*, Sinhalese.

*Hirundo coronata* Tick. J.A.S.B. ii. p. 580 (1833) (Bora); *Dendrochelidon coronatus*, Legge p. 328; *Macropteryx coronata*, Oates & Blan Vol. III. p. 180.

*Description*.—Male: Upper plumage, with the sides of the neck, bluish gray; the crest and upper wing coverts darker with a

green gloss; wing and tail quills dark brown glossed with green; lore velvet black, bordered above by a thin, whitish stripe; upper chin moustache stripe, and ear coverts chestnut; throat, breast, and side of body light bluish gray, passing gradually into the white of the abdomen and lower tail coverts.

Females lack the chestnut patch on the face and throat; the ear coverts are almost black, and are bordered below by a white strip from the gape.

Young birds have broad, brownish gray borders, edged with white on the feathers of the upper parts, and dark brown bars near the tip of the feathers on the lower plumage.

Bill black; iris dark brown; legs pinkish brown.

Length 9.5; wing 6.1; tail, outer feathers about 5, central about 1.75; tarsus .4; bill from gape .74.

*Distribution*.—Fairly common all over the Island. Like most Swifts the birds wander a good deal; in the northern half of the Island they are found chiefly round the large tanks. It occurs in the better wooded parts of India, and extends eastwards throughout Burma and Siam.

*Habits*.—Found generally in small parties round forest clearings, or jungle tanks. It is extremely fond of perching on dead trees. When flying over water, it often dips to the surface and rises again. The breeding season is from March to July. The nest is a tiny, fragile half saucer, composed of flakes of bark cemented with saliva, and glued to the side of a bare, horizontal branch, generally at some height from the ground. A solitary, grayish white egg is laid, measuring about .94 by .67.

## Sub-order CAPRIMULGI

### Family CAPRIMULGIDAE

#### *Nightjars*

The Nightjars, or Goatsuckers, are a Family with crepuscular and nocturnal habits, found almost all round the world, except in the Frigid Zones. The plumage is soft and mottled, and the flight noiseless. Their food consists wholly of insects, which are generally caught on the wing. The gape of the mouth is very wide, but the bill itself is short, weak, and flexible. The only genus found in Ceylon is furnished with strong rictal bristles. The wings are long and pointed. The legs are rather weak, the middle toe is long, and furnished on the inside of the claw with a



comb-like appendage. There is no nest, the two protectively coloured eggs being laid on the bare ground. The young when hatched are covered with down, and are helpless. In one Ceylon species—*C. asiaticus*—the sexes are alike, but generally males are distinguished by white spots on the wings and tail. In the females these spots are either buff coloured, or rufous, or are altogether wanting. Three species are found in the Island, of which one may be peculiar to Ceylon.

*Key to Ceylon Caprimulgidae*

A.—Tarsus almost entirely naked; sexes alike; length 9.

*C. asiaticus* (Common Indian Nightjar).

B.—Tarsus feathered; sexes not quite alike; length 10 or over.

(1) Rictal bristles white at the base, a continuous white patch across the throat.

*C. atripennis* (Jerdon's Long-tailed Nightjar).

(2) Rictal bristles dark throughout; centre line of throat dark, dividing the white throat patch into two.

*C. kelaarti* (Ceylon Jungle Nightjar).

# 155. CAPRIMULGUS ASIATICUS

## The Common Indian Nightjar

*Bin-bassā* Sinhalese; *pāthekai-kuruvi*, *kuruttu-pakkul* (E. Prov.), Tamil. *Caprimulgus asiaticus* Lath. Ind. Orn. ii. p. 588 (1790) (India); Legge p. 343; Oates & Blan. Vol. III. p. 186.

*Description*.—General colour of upper plumage sandy gray, finely pencilled with brown; forehead and centre of crown striped with black; the feathers of the back with dark shaft-stripes; round the neck a broad collar of buff, speckled with black; scapulars velvety black with broad margins of rich buff; paler buff patches on the wing coverts; wing quills dark brown, the first four primaries each with a large, white spot in the middle, the secondaries barred with rufous buff; middle tail feathers coloured like the back, but with indistinct, narrow cross bars, the two outer pairs with large, white tips, and the outermost pair with buff margins to the outer web; moustache stripe whitish buff; on each side of the throat a patch of white feathers tipped with buff and black; rest of lower parts buff, barred indistinctly with brown; lower tail coverts buff without any bars. Sexes alike.

Bill reddish, the tip black; iris deep brown; legs and feet fleshy brown.

Length 9 ; wing 5.75 ; tail 4 ; tarsus .8 ; bill from gape 1.2. Females rather smaller.

*Distribution*.—Common all over the low-country, except in the wet forest zone, ascending to about 4,000 feet in the drier parts of the hills. It occurs throughout the greater part of India and Burma, except on the higher hills and in the large forests.

*Habits*.—This species haunts scrub jungle, especially low, sandy scrub near the sea; it is also fond of open tracts near woods and chenas. Any one motoring after dark in the wilder parts of the Island will probably flush dozens of birds off the road. During the day they roost on the bare ground, between bushes, and can almost be trodden on before they get up. The cry starts off with a slow *chuk*, which is repeated at quickening intervals, exactly resembling the sound of a stone skimming across a stretch of ice. The breeding season is about April, and again in August. The two eggs are laid on the bare ground, generally in the shelter of a bush. They are fairly regular ovals, with a smooth texture, and a ground colour of salmon pink, or some approximate shade, marbled and mottled with brownish red and faint purplish gray. Average size 1.05 by .78.

### 156. *CAPRIMULGUS ATRIPENNIS*

#### Jerdon's Long-tailed Nightjar

*Bin-bassā*, Sinhalese; *pāthekai-kuruvi*, *kuruttu-pakkul* (E. Prov.), Tamil. *Caprimulgus atripennis* Jerd. Ill. Ind. Orn. pl. 24 (1847) (Eastern Ghats) Legge; p. 340; *C. macrurus*, Oates & Blan. Vol. III. p. 188.

*Description*.—Male: General colour, above, a minutely mottled brownish buff; crown and hind-neck paler, with long, black spots on the middle feathers; lower hind-neck slightly tinged with rufous; scapulars with large, velvety black patches, some feathers with buff bars and margins; wing coverts mottled and stippled with black and buff; a white spot on the inner web of the first primary and on each web of second primary, a white bar across the third and fourth; tail feathers blackish brown with lighter mottlings, the two outermost pairs with broad, white tips; moustache stripe whitish; chin, throat, and breast a finely mottled brown; across the centre of the throat a patch of white feathers, tipped with buff and black; abdomen and lower tail coverts fulvous, narrowly barred with dark brown.

In females the spots on the primaries and tail feathers are smaller and buff coloured instead of white.

Bill reddish brown, tip black; iris deep brown; legs brown.

Length 10.5 to 11; wing 7; tail 5; tarsus .7; bill from gape 1.35. Females are smaller. Wing about 6.5.

*Distribution*.—More local than the preceding species, but fairly well distributed over the low-country and up to about 3,500 feet. It is also found in South India as far North as the Godaveri and Belgaum.

*Habits*.—More of a forest bird than *C. asiaticus*, but equally fond of squatting on paths after dark. It also frequently perches on dead branches of trees. It is found mainly in dry forest, or chena, avoiding localities in which there are no large trees. The note is a fairly loud "churr," preceded by a low "grog-grog-grog" heard only when one is close to the bird. The breeding season is from March to about May. Two eggs, as usual, are laid on the bare ground, but they are not of the normal marbled type. The ground colour is pale buff, sparingly spotted with dark brown. Average size 1.14 by .88.

### 157. CAPRIMULGUS KELAARTI

The Ceylon Jungle Nightjar (Pl. X. Fig. 3.)

*Bin-bassā*, Sinhalese: *pāthekai-kuruvi*, Tamil.

*Caprimulgus kelaarti* Blyth, J. A. S. B. p. 175. (1851) (Ceylon); Legge p. 337; *C. indicus*, Oates & Blan. Vol. III. p. 109.

*Description*.—Male:—General colour, above, ash gray, mottled with white, and finely pencilled with dark brown; the centre of the crown and nape, the back, scapulars, rump, and upper tail coverts are heavily marked with black; the scapulars have pale buff margins; wing coverts dusky brown with ocellate, whitish spots, which are faintly mottled with brown; wing quills dusky brown; first primary notched on the outer web with buff and with a white spot on the inner web; the next three primaries have a white bar right across the quill; the tail is much mottled, and is irregularly barred with black; all the tail feathers, except the central pair, have large, white spots towards the end, the extreme tips being mottled brown; there is an imperfect, white moustache stripe; centre of the throat chestnut buff with black cross markings, on each side of the throat the feathers have white bases, which form a white patch; the buff markings are continued round the sides of the neck, forming an imperfect collar; fore-neck and breast dusky brown mottled with ash colour; abdomen and lower tail coverts whitish buff with brown bars.

Females are darker; the spots on the wing quills are smaller, and buff instead of white; the tail feathers have no white tips, and the throat patches are buff.

Bill vinous brown, paler at the gape and black at the tip; iris deep brown; legs and feet vinous brown.

Length 10.5; wing 7.25; tail 5; tarsus .6; bill from gape 1.25. Females slightly smaller.

*Distribution*.—Occurs mainly on the hills of the central ranges down to about 3,000 feet, but Legge also found it in the forests at the foot of Friar's Hood in the Eastern Province. This species also possibly occurs in the extreme South of Travancore.

*Habits*.—To be met with chiefly on the patanas, open forest glades, and "eliyas" of the higher hills. During the day it lies up among the rocks at the edge of the jungle, coming out in the evening. The cry is described by Legge as "chump-pud" repeated at intervals. It is noisiest in the breeding season, which occurs about April. The usual two eggs are laid on the ground under a bush. The ground colour is salmon pink, with brown and purplish gray markings. The texture is fairly glossy. Average size of two Ceylon eggs 1.11 by .76.

## Sub-Order PODARGI

### Family PODARGIDAE

#### *Frogmouths*

The Frogmouths closely resemble the Nightjars in their general appearance and habits, but are readily distinguished by the bill, which is extremely broad, flat, rigid, and horny, while the tip is hooked. There are no true rictal bristles, but at the base of the bill on each side is a tuft of bristly feathers. There are similar tufts in front of the eyes, while the feathers of the ear tufts also end in bristles. The wings are rounded and short. The nest is either a structure of twigs, or a pad of moss, &c., placed on a branch. The eggs, one or two in number, are white and glossless. Frogmouths are found in South India, the Eastern Himalayas, South-eastern Asia, and Australasia. One species occurs in Ceylon.

## 158. BATRACHOSTOMUS MONILIGER

### The Ceylonese Frogmouth

*Gembi-kata-bassā*, Sinhalese.

*Batrachostomus moniliger* Layard, Blyth. J. A. S. B. xviii. p. 806. (1849) (Ceylon); Legge p. 331; Oates & Blan. Vol. III. p. 196.

*Description*.—Male: In a beautiful gray bird from the North-Central Province the general colour of the upper plumage is lichen gray mottled with soft black; the feathers of the crown and back end in black spots with a minute tip of white, or buff; an indistinct, white collar on the hind-neck; the outer feathers of the scapulars almost entirely mottled white, with the same terminal, black spots and white

specks as on the crown feathers; the inner scapulars are pale only on the outer web; some of the wing coverts have conspicuous, white spots; primary and outer secondary quills dull blackish brown, notched with black, or rufous on the outer web; tail mottled gray with narrow, wavy, dark cross bars; under surface the same mottled gray as the back, with an imperfect, white gorget; the abdomen much paler. Some birds, probably older, are less mottled and much more rufous.

Females are reddish brown with faint, blackish mottlings, and have an indistinct, white collar, sometimes wanting, on the hind-neck; there are minute black tips to a few of the scapulars, and white spots on a few of the longer wing coverts; the tail feathers bear traces of narrow, dark bars; the feathers of the throat have sub-terminal black bars and white fringes; a few similar feathers are scattered over the abdomen.

Bill olive brown, paler on the lower mandible; iris dull yellow; legs yellow, or fleshy brown.

Dimensions vary considerably; length 7.75 to 9; wing 4.3 to 5; tail 4 to 4.75; tarsus about 5; bill from gape about 1.4.

*Distribution.*—Occurs in the heart of the jungle, probably all over the Island, but very seldom seen. Specimens have been obtained from sea level to nearly 6,000 feet up. It is also found in the Wynnaad and Travancore.

*Habits.*—A sluggish, nocturnal bird frequenting thick bamboo jungle, or dense forest growths. During the day it lies fast asleep perched across a branch with its bill turned upwards. A.L. Butler reported it as common round Medagama in Uva, and describes the cry as a rapid "cooroo, cooroo, cooroo," Legge also noticed a chuckling cry as fairly common in the northern forest tract and in Ratnapura, and attributed it to this species, which is more abundant than generally supposed. The nest is a small pad of dead leaves, lichen, &c., woven in with vegetable down, and placed in the fork of a sapling at some height from the ground. The breeding season is probably from Christmas to April. The single egg is pure white and glossless; the texture is fine, but the shell is rather fragile and porous; the shape is long and cylindrical, with little difference between the two ends. Average measurement about 1.19 by .80.

## Order VI. TROGONES

### Family TROGONIDAE

#### *Trogons*

The Trogons form a well-marked group of forest birds found in the tropical regions of Asia and America, and in Africa south of the Sahara. They are noted for their brilliant colours, soft plumage, and tender skin, and may be told apart from all other birds by the structure of their feet. The first and second toes are turned backwards, the third and fourth forwards. Herein they differ from the zygodactylic Orders, in which the first and fourth toes are turned backwards. The bill is short, strong, and wide; the tip of the upper mandible is hooked and notched; the nostrils and chin are covered with bristles. In the only Indian genus the wing is short and rounded; the tail is long, with broad feathers, which are square-tipped in adults and pointed in young birds; the tarsi are short and half feathered; the feet are small.

All Indian species feed on insects, captured mainly while flying, but sometimes picked up from the ground. They breed in the hollows of rotten stumps, or branches, laying three creamy white eggs on the bare wood. Only one species is found in Ceylon.

#### 159. PYROTROGON FASCIATUS

##### The Malabar Trogon

*Gini-kurullā*, Sinhalese.

*Trogon fasciatus* Pennant. Ind. Zool. pl. iv. (1769) (Ceylon); *Harpactes fasciatus*, Legge. p. 269; Oates & Blan. Vol. III. p. 199.

*Description*.—Male: Head, neck, and upper breast dull black, the breast slightly tinged with slate gray; back, scapulars, and the short wing coverts along the forearm yellowish brown; rump and upper tail coverts slightly paler; wings mainly black; the unexposed bases of the primary quills are white, and all primaries, except the first, have a well defined, white outer edge; outer webs of secondary quills, the whole of the tertiaries, and the wing coverts, except those on the forearm, black, daintily barred with fine, close set, wavy white lines; the middle tail feathers are chestnut, tipped with black, in the next two pairs the

black increases on the inner web, while the three outer pairs have black bases and long white tips ; a white band across the chest divides the dark upper breast from the pale crimson of the rest of the lower plumage.

Females : Head and neck olive brown ; upper breast lighter brown ; chin blackish ; the bars on the wing coverts and inner wing are light brown instead of white, while the second and third pair of tail feathers have more chestnut. There is no white chest band, and the under parts from the lower chest to the vent are brownish buff.

Immature males have a brownish head and neck, the bars on the wings are fulvous, the chest feathers are mixed with gray, and the breast and abdomen with rusty buff.

Bill deep blue ; iris dark brown ; legs grayish blue.

Length 11 ; wing 4·7 ; tail 5·7 ; tarsus ·6 ; bill from gape 1. Females slightly smaller. Indian birds are larger.

*Distribution*.—Occurs in high forest all over the Island. It is also found on the Malabar Coast and in parts of Central India.

*Habits*.—May be found in thick forest. The birds generally go about in pairs and spend most of their time perched bolt upright on a large branch, flying out now and again to catch insects. The breeding season is about May. Three very glossy, pale, buff eggs are laid in a hollow in a rotten stump 6 to 12 feet off the ground. Average size about ·94 by ·82.

## Order VII. COCCYGES

### Family CUCULIDAE

The Cuckoos, Koels, Malkohas, and Coucals are comprised in one Family—*Cuculidae*, which is united with an African group, the Plantain-eaters—*Musophagidae*, to form the Order *Coccyges*.

The birds of this Order show some affinities in their anatomy with the Parrots and also with the Game birds. The *Cuculidae* are found almost all over the world, but are most numerous in the tropics. The feet are zygodactylic, the first and fourth toes being directed backwards. The young are hatched naked, and acquire their feathers without passing through a downy stage. The Family is divided into two Sub-families: the *Cuculinae*, or true Cuckoos, which have the tarsus feathered in front, and the *Phoenicophainae*, in which the tarsus is naked.

### Sub-family CUCULINAE

#### *Cuckoos*

The true Cuckoos are a curious group of birds with parasitic breeding habits. Nearly all the species, instead of pairing, indulge in promiscuous intercourse, while the eggs are placed in the nests of other birds. In many cases the females appear to lay their eggs on the ground, and to convey them in their bills to the chosen nest. At other times the female lays the egg in the nest of the host. As soon as the young cuckoos grow large enough, they eject the young of their foster parents from the nest.

Cuckoos are found nearly all over the world; most species are migratory, or partially so. They are wholly, or mainly insectivorous. The bill is of moderate size, slightly curved towards the tip, and pointed; the wing is more or less pointed, and the tarsus more or less feathered in front. In most genera the measurement of the tail is equal, or nearly equal to that of the closed wing. In one genus, *Clamator*, it is much longer; the last-named genus is also differentiated by a pointed crest and rather rounded wings, and forms a connecting link between the typical forms of the present Sub-family and the *Phoenicophainae*. The various species of the genera *Cuculus* and *Hierococcyx* are very Hawk-like in their flight and outward appearance, but may be recognized



by their head and bill, which are much longer in profile than those of a bird of prey, and by their zygodactylic feet. The genus *Surniculus* closely mimics the Black Drongo.

Those who care to know more about the breeding habits and eggs of this group will find an interesting series of articles with coloured plates in Volume XVII. of the Journal of the Bombay Natural History Society.\*

Nine species, which include representatives of six out of the seven Indian genera, are found in Ceylon, but several of them are rare migrants.

*Key to Ceylon Cuculinae*

I.—No crest; tarsus feathered.

A.—Wing 6 inches, or over appearance Hawk-like.

(a) Tail not regularly cross-barred; primary quills twice the length of secondaries. Genus *Cuculus*.

(1) Wing 8 or over; tail same shade of brown throughout. *C. canorus telephonus* (The Asiatic Cuckoo).

(2) Wing about 6. *C. poliocephalus poliocephalus* (The Small Cuckoo).

(3) Wing about 7.5; a broad, black band at end of tail. *C. micropterus micropterus* (The Indian Cuckoo).

(b) Tail regularly cross-barred; primary quills half as long again as secondaries. *Hierococcyx varius* (The Common Hawk Cuckoo).

B.—Wing 5 inches or under, and comparatively shorter; primaries only one-third longer than secondaries.

(a) Bill fairly slender, not compressed; wing about 4.5; adult plumage unbarred, ashy gray; immature birds suffused with rufous on throat and chest, and with barred upper plumage. *Cacomantis merulinus passerinus* (Indian Plaintive Cuckoo).

(b) Bill stouter and compressed; wing about 5; no distinct immature dress; plumage always barred; no rufous on throat or chest. *Penthoceryx sonneratii waiti* (Ceylon Banded Bay Cuckoo).

C.—Plumage black; appearance mimics that of the Drongo; wing about 5. *Surniculus lugubris stewarti* (Ceylon Drongo Cuckoo).

\* "The Oology of Indian Parasitic Cuckoos" (J.B.N.H.S. Vol. XVII. pp. 72-351, 676), by E. C. Stuart Baker.

II.-- A distinct crest; tarsus feathered only at the base. Genus *Clamator*.

- (a) Wing under 6; upper parts black. *C. jacobinus* (Pied Crested Cuckoo).
- (b) Wing over 6, and mainly chestnut coloured; a white collar. *C. coromandus* (Red-winged Crested Cuckoo).

## 160. CUCULUS CANORUS TELEPHONUS

### The Asiatic Cuckoo

*Kōhā*, Sinhalese; *kuyil*, *kusil*, Tamil.

*Cuculus telephonus* Heine, Journ. f. Orn. 1863. p. 352. (Japan); *C. canorus*, Legge p. 221; Oates & Blan. Vol. III. p. 205.

*Description*.—*Adult*: Upper plumage ashy gray, paler, and tinged with bluish on the rump and upper tail coverts; wing quills brown, the inner webs with deep notches of white; tail feathers blackish brown with white tips, the margin of the inner webs spotted with white, and a few white markings along the shafts; throat and fore-neck pale ashy gray, blending on the sides of the neck into the darker hue of the upper plumage; rest of lower parts and wing-lining white with narrow, wavy bars of brownish black.

*Young, First Stage*: Feathers of upper parts dark brown, barred with rufous and edged with white; a white spot on the nape; lower plumage broadly barred with brownish black and white; tail browner than in adults and more boldly spotted; as the birds grow up the rufous bars on the upper plumage are lost, except on the wings.

*Second Stage*: The black bars on the under parts become narrower; the upper plumage, wings, and tail are barred with pale rufous; as the birds reach maturity the white nape spot disappears, while ashy patches appear on the upper parts and spread until they wholly replace the rufous bars.

Bill dark horn colour, orange-yellow at the gape, and yellowish on the edges and at the base; iris yellow; legs yellow. In young birds the lower mandible is pale green and the iris brown.

Length about 13; wing 8.0; tail about 7; tarsus .8; bill from gape 1.2. The dimensions are variable.

*Distribution*.—This form, a sub-species of the Common English Cuckoo is one of our rarest hill migrants. Two or three specimens have been obtained during the north-east monsoon in Dikoya and Kotmale and Layard once shot a specimen in Colombo while migrating. The Asiatic Cuckoo breeds over a great part of Asia, southward to the Himalayas and eastwards to Japan, and winters as far south as Ceylon.

*Habits*.—Should be looked for on the borders of woods. The well-known call is uttered only by the male in the breeding season, so is not likely to be heard in Ceylon. In flight and appearance it is singularly like a Hawk. It feeds on caterpillars, grubs, and insects.

### 161. CUCULUS POLIOCEPHALUS POLIOCEPHALUS

#### The Small Cuckoo

*Kōhā*, Sinhalese; *kuyil*, *kusil*, Tamil.

*Cuculus poliocephalus* Lath. Ind. Orn. p. 214. (1790) (India. Srinagar); Legge p. 231; Oates & Blan. Vol. III. p. 208.

*Description*.—Adult: Very similar to the last species, but considerably smaller; the black bars on the breast are broader.

Young birds pass through three stages. In the nestling plumage the feathers of the upper parts are blackish brown with white margins; chin and throat almost wholly black; rest of lower parts white, broadly barred with black.

Second stage: Chin and throat imperfectly barred with white and tinged with rufous; the white margins on the upper plumage become smaller, while a white spot, sometimes extending to a half collar, appears on the nape.

Third Stage: The white disappears from the nape; the upper parts become bright chestnut with black bars; as the birds approach maturity the black bars disappear from the neck, rump, and tail coverts, while the throat and breast are tinged with rufous.

Lastly, the ashy adult plumage appears in patches which spread. All the changes from one phase to another are gradual.

Bill blackish, the gape and the base of the lower mandible yellow; iris brown; legs and feet yellow.

Length about 10; wing about 6; tail 5·6; tarsus ·75; bill from gape 1.

*Distribution*.—Breeds from North China westwards to the Himalayas. In winter it migrates southwards, and has occasionally been recorded from Ceylon.

*Habits*.—Appears to be a very tame bird, "frequenting low trees and stunted jungle near open places" (Legge). The cry appears to be uttered only in the breeding season, and is a loud, harsh call of several syllables.

### 162. CUCULUS MICROPTERUS MICROPTERUS

#### The Indian Cuckoo (Pl. X. Fig. 2.)

*Kōhā*, Sinhalese; *kuyil*, *kusil*, Tamil.

*Cuculus micropterus* Gould, P. Z. S. 1837. p. 137. (Himalaya); Legge p. 228; Oates & Blan. Vol. III. p. 210.

*Description*.—Adult: Upper plumage ashy brown, grayer on the back of the neck and head; the wing quills have deep notches of

white on the inner webs; tail light smoky brown with a broad, dark, sub-terminal bar and a white tip; the tail feathers also have white or buff marks on the edges, and on the shafts white spots, which on the outer feathers form irregular bars; throat and neck pale gray, sides of the face darker; rest of lower parts creamy white with broad, black bars; the bars are narrower and more distant on the under tail coverts and wing-lining.

Females are browner on the throat and neck.

Immature birds are brown above; the head and neck mottled with white and rufous; the feathers of the back and wings tipped with rufous; lower parts buff, barred with dark brown; the markings on the tail are more rufous and banded. The change to adult plumage is gradual.

Bill horny black, the lower mandible fleshy; iris brown; legs yellow.

Length about 12.25; wing about 7.5; tail 6.25; tarsus .8; bill from gape 1.25.

*Distribution*.—Said to be rare in Ceylon, and apparently a migrant. Specimens have been recorded from various localities both in the low-country and in the hills. In the breeding season it is found in the Himalayas and Assam hills, and ranges from Central and South China to Central Asia. In winter it is found over most of India, though rarer in the south, and extends south-eastwards through Burma, &c., to the Malay Archipelago.

*Habits*.—This species has a very Hawk-like appearance. It keeps to the tops of trees in tall forest, especially on hill slopes, and is a very shy bird. The call is described as a melodious, double note of two syllables in each part, represented by its Bengali name of "Boukotako." It may be the bird whose call is not uncommonly heard in the Eastern Province, where it is known as "Captain Philpots." I have also heard this call in the Medagama hills and near Polonnaruwa, but have never seen the bird, or met any one who has identified it.

### 163. HIEROCOCCYX VARIUS

#### The Common Hawk-Cuckoo

*Kōhā*, Sinhalese; *kuyil*, *ūtiya-kāra-kuruvi*, Tamil  
*Cuculus varius* Vahl. *Skriv. Nat. Selsk. iv.* p. 61. (1797) (India); *Hierococcyx varius*, Legge p. 240; Oates & Blan. Vol. III. p. 213.

*Description*.—Adult: Upper plumage dark ash gray, darkest on the back and palest on the rump and upper tail coverts; wing quills browner, with broad, white bars on the inner webs; tail ash brown, crossed with four or five bars of blackish brown, each of which is bordered behind with a pale rufous band; lores, cheeks, and ear-coverts bluish ash colour; chin and throat whitish; fore-neck and breast rufous mixed with pale ash

colour; the rest of the lower parts shade from rufous on the breast to white on the lower tail coverts, and are barred with ashy gray.

Young birds are dark brown above with rufous crossbars; the lower parts are tinged with rufous and marked from the throat to the abdomen with rufous brown, drop shaped markings; tail as in adults, but more rufous. The adult plumage is gradually assumed.

Bill horny black on the upper mandible, lower mandible and gape yellowish; iris in adults yellow, or orange, in young brown; legs and feet yellow.

Length about 13.5; wing 7.5; tail 6.75; tarsus .95; bill from gape 1.25. Dimensions are rather variable, and females are smaller than males.

*Distribution*.—Most of our Ceylon birds are migrants, arriving early in November and making at once for the hills. They leave again about April. Some birds, however, appear to stay all the year round, as Mr. T. E. Tunnard informs me that he has heard the unmistakable cry on Rothschild Estate Pussellawa in June and August, while I have an egg taken in December in the Puttalam District which may belong to this species. It is found as a resident over all India westward of the Bay of Bengal, except in the Punjab, Sind and Assam.

*Habits*.—This is the true "Brain-fever Bird." Its cry is a piercing "pipeeha," repeated several times in an ascending scale. In Ceylon it is found in big jungle, especially on the borders of the grassy "eliyas" in the higher ranges. It does not appear to be very abundant.

It lays pale blue eggs in the nests of the larger species of Babbler, and the egg alluded to above was found in the nest of the Ceylon Babbler—*Turdoides griseus striatus*.—It measures 1.04 x .83. The shell was hard, and the "white" greenish.

#### 164. CACOMANTIS MERULINUS PASSERINUS

##### The Indian Plaintive Cuckoo

Köhā, Sinhalese; *kuyil*, *kusil*, Tamil.

*Cuculus passerinus* Vahl. *Skriv. Nat. Selsk.* iv p. 57. (1797) (India); *Legge* p. 235; *Cacomantis passerinus*, Oates & Blan. Vol. III. p. 216.

*Description*.—Adult: Upper plumage dark ashy colour with a greenish gloss on the mantle; wing quills brown, with a white patch near the base of the inner webs; tail feathers nearly black, with white tips and oblique bands of white on the inner webs, most noticeable on the outer feathers; lower plumage ashy, paler on the abdomen; the edge of the wing, the vent, and lower tail coverts are white.

Young birds are largely rufous, and pass through three stages. At first the upper plumage is dark glossy brown, with rufous edges to the feathers; tail black, with broad, white and rufous bars and marks;

lower parts white, with dull brown bars; throat and breast tinged with rufous.

Second Stage: Upper parts and sides of head and neck bright chestnut, with broad, black bars on the back and wings and a few black spots on the head, hind-neck, rump, and tail coverts; tail feathers chestnut, with irregular, black markings on the shaft and a large, black patch near the tip, which is usually white.

Third Stage: The head, hind-neck, back, rump, and tail coverts lose their spots, the dark bars on the wings change to spots; the tail feathers lose all black marks, save the patch near the end, and many of the bars on the throat and breast disappear, leaving these parts bright chestnut. Young birds can always be distinguished from the next species by their slightly smaller size, more slender bill, and by the rufous tint of the throat and breast. The change from one stage to another is gradual.

Bill dark brown; iris reddish, or grayish brown; legs and feet dingy yellow, or grayish.

Length about 9; wing 4.5; tail 4.5; tarsus .65; bill from gape 1.

*Distribution*.—Apparently a migrant, appearing during the north east monsoon, and wandering all over the Island. It is commonest in the drier parts of the low-country, and does not ascend to any great height. It occurs over the greater part of India.

*Habits*.—This species frequents low and scrubby jungle, the edges of open spaces round tanks, &c., It is a restless and rather wary bird. In India during the breeding season it has a plaintive ventriloquistic note, described by Jerdon as "ka-veer, ka-vee-er." During its stay in Ceylon it appears to be silent. A few birds may possibly remain and breed in Ceylon, as the species is resident over the greater part of its range in India. The eggs have been found in the nest of the Tailor Bird—*O. sutorius sutorius*. These are of a white type, rather larger than the eggs of its host, with a few reddish spots. Another type of egg is blue, with even more scanty spots. In India it also lays in the nest of the Common Wren Warbler (*P. inornata*) and the Yellow-eyed Babbler (*P. sinensis*).

### 165. *PENTHOCERYX SONNERATHI* WAITI

#### The Ceylon Banded Bay Cuckoo

*Punchi-kōhā*, Sinhalese; *kuyil*, *kusil*. Tamil.

*P. sonneratii waiti* Stuart Baker, Nov. Zool. xxvi. p. 293 (1919) (Ceylon); *Cuculus sonnerati*, Legge p. 233; *Penthoceryx sonnerati*. Oates & Blan. Vol. III. p. 219.

*Description*.—In this species the adult plumage remains barred, and resembles that of the immature bird. Upper plumage dark brown, lusted with green and barred with rufous; forehead more or less mottled with white; wing quills dark brown, the outer webs with a narrow, rufous margin, and the inner with a broad, rufous white border; middle tail feathers brown with indented rufous edges; the other feathers have white tips, and the rufous borders increase, the outermost feathers being mainly rufous with irregular brown bars; the lower parts from chin to tail coverts, together with the sides of the head and neck, are buff white with many narrow, wavy crossbars of dark brown; the ear coverts are darker.

Bill black above and at the tip, greenish yellow underneath; iris brownish, or yellowish red; legs and feet brownish slate, or bluish lead colour.

Length about 10; wing 5; tail 4.85; tarsus .7; bill from gape 1.1. Females rather smaller: wing 4.75.

*Distribution*.—Resident in Ceylon; found almost all over the Island; commonest in the Eastern Province, but nowhere numerous. Mr. Stuart Baker informs me that the Ceylonese form is a good sub-species, recognizable at a glance from typical *P. sonnerati*, a reddish form, which occurs in India and Burma, by its almost blackish coloration. He has done me the honour of naming the Ceylon sub-species *P. sonneratii waiti*. Allied sub-species occur in Java and Malaya.

*Habits*.—Frequents the edges of tanks where there are dead trees; also chenais and the park country. It is a shy bird, keeping to the tops of trees. It is noisy in the mornings and evenings, giving out a curious whistle, which Legge represents by "whi-whip, whi-whip—whi-whip. whi-whip." It has also a call note, beginning in a low key, changing to a higher, and then dying away.

In India this Cuckoo is reported as laying its eggs in the nests of the Southern Red-whiskered Bulbul (*O. emeria fuscicaudata*), a species not found in Ceylon; also in the nests of the small White throated Babbler (*D. albigularis*) and the Common Bush Bulbul (*Æ. tiphia*). An egg taken from the oviduct is described as brownish pink, speckled and freckled with reddish brown. The size is about .76 by .63; the shape a broad, blunt oval, slightly pointed at one end. The texture is smooth and fine and somewhat glossy.

## 166. SURNICULUS LUGUBRIS STEWARTI

### The Ceylon Drongo Cuckoo

Kōhā, Sinhalese; *kuyil*, *kusil*, Tamil.

*Surniculus lugubris stewarti* Stuart Baker. Nov. Zool. xxvi. p. 293. (1919) Ceylon); *S. lugubris*, Legge p. 243; Oates & Blan. Vol. III. p. 223.

*Description*.—Adult : Black all over, with a green and purple gloss, which is brightest on the upper plumage ; there are white patches on the inner webs of the primary quills ; the outermost tail feathers are crossed with slanting bars of white, and there are a few white spots on the next pair ; there is also a little white on the thighs and lower tail coverts.

Fledglings are speckled all over with white, each feather, except the wing quills, being marked with a clear, white spot on the centre near the tip ; these white spots gradually disappear, but often a few spots remain after maturity on the nape and upper tail coverts.

Bill black ; iris brown ; legs blackish. Length about 10 ; wing 5·1 ; tail 5·5 to end of longest quill ; tarsus ·60 ; bill from gape 1·0.

*Distribution*.—Locally distributed throughout the low-country and up to about 4,00 feet ; in some districts it is possibly a partial migrant. In the peninsula of India it is very rare, but the same sub-species is found in Travancore and the west coast of India northwards to Karwar.

*Habits*.—This species frequents the undergrowth and low branches of trees throughout the northern forest tract ; it is also found in scrub jungle, chena clearings, and on patanas dotted with trees. It is by no means shy. The call, heard chiefly during the north-east monsoon, is a clear whistle of six ascending notes. The food consists of seeds, as well as of caterpillars and beetles. As the adults in their appearance closely mimic Drongos, it was for long supposed that this species deposited its eggs in the nest of the Drongo. It will be seen, however, that the fledgling is most unlike that of the Drongo, and I have lately obtained clear evidence that in Ceylon this Cuckoo lays in the nest of the Black-fronted Babbler (*R. atriceps nigrifrons*), as in May, 1917, in the Puttalam District, a nest of this species was brought to me tenanted by a young Drongo Cuckoo. Previously to this, Mr. E. C. Stuart Baker had seen a strange egg taken by me from a Black-fronted Babbler's nest and had assigned it tentatively to this Cuckoo. This egg was taken in the Southern Province also in May. I have also a similar egg, taken near Puttalam in December 1918. In shape it is an elliptical oval, measuring ·83 by ·61. The ground colour is white, with a very faint pink tinge, fairly profusely spotted with reddish brown and dull inky purple. This Cuckoo may also possibly lay in the nests of the Bush Bulbul (*E. tiphia zeylonica*.)

## 167. CLAMATOR JACOBINUS

### The Pied Crested Cuckoo

*Konday-kōhā*, Sinhalese ; *kondai-kuyil*, Tamil.

*Cuculus jacobinus* Bodd. Tabl. Pl. Enlum. p. 53. (1783) (Coromandel Coast) ; *Coccyzus jacobinus*, Legge p. 246 ; Oates & Blan. Vol. III. p. 225.



*Description*.—Adult: Upper plumage and sides of the head black, glossed with green and purple; wing quills brown with a broad, white band across them; the tail feathers have white tips, which on the central feathers are narrow and tend to be abraded; under parts and wing-lining dirty, yellowish white.

Immature birds are brown above: the markings on the wings and tail are buff; the chin and throat are gray; remainder of lower parts buff.

Bill black; iris reddish brown; legs leaden blue.

Length 12 to 13; wing 5.5 to 6; tail about 6.5; tarsus 1.0; bill 1.1.

*Distribution*.—Found fairly widely over the low-country, commonest near the sea. It is resident in the drier zone, but in the wet districts it is apparently a migrant during the north-east monsoon. It may be found up to about 3,000 feet. It occurs throughout India and Upper Burma, and ranges through South-west Asia to the whole of South Africa south of the Sahara.

*Habits*.—Usually found in scrub jungle, the fringes of open spaces in the forest zone, and in open plains. It is generally met with singly, or in pairs, but in the Hambantota District I have seen flocks of as many as twelve, perched on low rushes in swampy ground and hunting for flies. The note is a distinctive high metallic whistle. The eggs are laid in the nests of the Ceylon Babbler, *Turdoides griseus striatus*, and the breeding season appears to be as extended as that of their host, for I have taken eggs from November to June, and again in August. I have several times found two of these eggs in one nest, but never more. They closely resemble the Babbler's eggs in size and colour, but are generally of a slightly different shade. They are broadly elliptical in shape, sometimes with rather square ends, the shell is hard, the surface smooth, satiny, and slightly pitted, while the "white" is greenish instead of being colourless as in Babbler's eggs. The average of a dozen Ceylon eggs is .94 by .76.

### 168. CLAMATOR COROMANDUS

#### The Red-winged Crested Cuckoo

*Kondai-kôhâ*, Sinhalese; *kondai-kuyil*, Tamil.

*Cuculus coromandus* Linn. Syst. Nat. i. p. 171 (1766) (Coromandel Coast); *Coccyzus coromandus*, Legge p. 249; Oates & Blan. Vol. III. p. 226;

*Description*.—Crown, nape, and sides of head black; a blue green gloss on the longish crest; a clearly marked half collar of white on the hind-neck; the back, scapulars, inner wing coverts, and tertiaries are black glossed with green; the remaining coverts and the wing quills chestnut; rump, upper tail coverts, and tail black, the two former glossed with green, the last with purple; outer tail feathers narrowly tipped

with white ; the throat and fore-neck are chestnut buff ; breast and upper abdomen white ; lower abdomen, vent, and thighs dusky gray ; under tail coverts black glossed with violet.

In young birds the feathers of the upper parts are tipped with rufous ; chin and throat whitish ; under tail coverts and edges of the tail feathers buff.

Bill black ; iris hazel brown ; legs and feet lead colour.

Length 15 to 16; wing about 6·4 ; tail 9·5; tarsus 1 ; bill from gape 1·4.

*Distribution*.—A rare bird, found here and there throughout the Island up to about 4,000 feet. The majority of the specimens appear to be migrants, arriving in October and leaving about April, but it is possible that in the northern forest tract some birds stay all the year round. This Cuckoo is very rare in the Indian Peninsula, but ranges from Nepaul, through Assam and Burma, to China and the Malay Archipelago.

*Habits*.—Found singly, or in pairs in thick scrub and thorny jungle. It feeds on caterpillars, beetles, &c. In the north of the Island the eggs may be looked for in the nests of the Ceylon Babbler, *Turdoides griseus striatus*, or possibly in those of the Magpie Robin, *Copsychus saularis ceylonensis*. They resemble those of *Clamator jacobinus*, but are larger and of a slightly paler blue. The average size of Indian eggs is about 1·06 by ·90.

[*Note* : The type specimen of *Chalcococcyx maculatus*—The Emerald Cuckoo—figured in Brown's "Illustration of Indian Zoology" 1776. is said to have been obtained in Ceylon by the Dutch Governor Loten, but as it has never been seen in the Island since, it must be relegated to the "doubtful species." It ranges from the Lower Himalayas eastwards through Burma and Siam to Sumatra. It is a forest bird keeping to the tops of trees. The description is as follows :—

*Adult Male* : Head, neck, upper breast, and upper parts glossy green tinged with bronze ; wing quills brown ; a white patch on the basal portion of the inner webs of most of the primaries ; outer tail feathers tipped with white, the outermost pair with three white bars ; lower breast, wing-lining, and abdomen banded with white and metallic green, or bronze ; under tail coverts green with narrow white bars.

*Females and Immature Males* : Crown and back of neck pale rufous, generally barred with white and dark brown ; back, wings, and tail metallic green tinged with yellow, or coppery bronze ; wing quills brown with rufous patches on the inner webs ; central tail feathers tipped with coppery bronze ; outer feathers barred with chestnut and black and tipped with white ; under surface barred white and copper.

Bill orange yellow, black at the tip; iris red brown; legs and feet reddish brown.

Length 7; wing 4·4; tail 2·9; tarsus ·6; bill from gape ·85.]

### Sub-family PHOENICOPHAINAE

#### *Koels and Coucals*

The Koels, Malkohas, and Coucals are a cuculine group, typically represented in Ceylon by the familiar Crow Pheasant. (frequently, but erroneously termed the "Jungle Crow") and the Koel. They are all birds of moderate size, with short, rounded wings and long, broad tails; the bill is generally stout, and the upper mandible much curved; the tarsus is always naked. Most of them are ground feeders, and are found in thorny scrub, thick jungle, or long grass. Their powers of flight are poor, but they slip through tangled thorn bushes and undergrowth with surprising ease. The Koel, *Eudynamis scolopaceus scolopaceus*, like the true Cuckoos, is parasitic in its nesting habits, and its eggs approach in colour and markings those of the Crows, in whose nests it lays. The other members of the Sub-family build their own nests and lay chalky-white eggs. Seven species representing five genera are found in Ceylon. Several of them are rare or local, while two forms *Phoenicophaes pyrrhocephalus*, which is placed in a genus by itself, and *Centropus chlororhynchus*, are peculiar to the Island.

#### *Key to Ceylon Phoenicophainae*

I.—Tail and wing measurements equal; male glossy black; female glossy brown speckled with white.

*Eudynamis scolopaceus scolopaceus* (Indian Koel).

II.—Tail measurement longer than that of wing.

A.—Tail tipped with white.

(a) Upper plumage gray, glossed with green; naked skin of face bluish.

*Rhopodytes viridirostris* (Small Green Malkoha).

(b) Upper plumage glossy green; naked skin of face red.  
*Phoenicophaes pyrrhocephalus* (Red-faced Malkoha).

(c) Plumage sandy brown; back and breast feathers spiny.

*Taccocua sirkee leschenaulti* (The Southern Sirkeer Cuckoo).

B.—Plumage black ; wings chestnut. Genus *Centropus*.

(a) Wing lining black.

(1) Bill black. *C. sinensis parroti* (Southern Crow-Pheasant).

(2) Bill green. *C. chlororhynchus* (Ceylonese Crow-Pheasant).

(b) Wing lining chestnut. *C. bengalensis bengalensis* (Indian Lesser Crow-Pheasant).

## 169. EUDYNAMIS SCOLOPACEUS SCOLOPACEUS

### The Indian Koel

*Gōmerā-kōhā*, Sinhalese ; *kuyil, kusil*, Tamil.

*Cuculus scolopaceus* Linn. Syst. Nat. i. p. iii. (1758) Bengal ; *Eudynamis honorata*, Legge. p. 251 ; Oates & Blan. Vol. III. p. 228

*Description*.—Male : Black all over with a bluish green gloss.

Female : Upper plumage brown with an olive gloss ; the head, back, and wing coverts speckled, and the wing and tail quills barred with white ; throat and fore-neck brown with white streaks, which change to wavy cross bars on the rest of the lower parts.

Young birds at first are black like the males, then become barred and spotted like the females. only the spots and bars on the upper plumage are rufous. Males then gradually assume their adult plumage, and females their adult markings.

Bill dull green ; iris crimson ; legs plumbeous.

Length about 16 ; wing 7·5 ; tail about 7·5 ; tarsus 1·2 ; bill from gape 1·5.

*Distribution*.—Common all over the low-country, but rather more local in the north than in the south. It appears to wander about to some extent, but does not ascend the hills to any great height. It occurs practically all over India, except on the higher slopes of the Himalayas.

*Habits*.—A noisy bird, familiar to most people in Ceylon. Its cry of “kuil, kuil” is uttered most persistently during the breeding season; the male has another call “ho-iy-o.” The birds skulk from tree to tree, and seldom remain long in the open. They feed on fruit for the most part. The breeding season is in June and July. Near the coast, where the Gray Crow is found, the eggs are laid in the nests of that species, elsewhere in the nests of the Black Crow. As many as five Koel's eggs have been found in one Crow's nest, and I have several clutches of four. They are noticeably smaller than Crow's eggs, and, as a rule, more dumpy. The ground colour is a grayish or brownish green, blotched and spotted with reddish brown. The average size of a fair Ceylon series is 1·23 by ·94

## 170. RHOPODYTES VIRIDIROSTRIS

## The Small Green Malkoha (Pl. X. Fig. 1.)

*Kalahā-kōhā*, Sinhalese; *kuyil*, *kusil*, Tamil.

*Zanclostomus viridirostris* Jerd. Madras. Journ. L. S. xi. p. 223. (1840) (Coonoor); Legge p. 258; *Rhopodytes viridirostris*, Oates & Blan. Vol. III. p. 231.

*Description*.—Upper parts gray with a greenish gloss, most noticeable on the wings and tail; tail broadly tipped with white; under parts ashy; the feathers of the throat and fore-neck are forked, which gives these parts a streaky appearance; the breast and abdomen are more or less tinged with rufous.

Bill pale leaf green; iris blood red; a small naked patch of bluish skin round the eye; legs dusky greenish, or bluish.

Length about 15.5; wing 5.25; tail 8.5 to 9.5; tarsus 1.35; bill from gape 1.35.

*Distribution*.—Found all over the low-country, but most numerous in the drier parts of the Island. It does not appear to ascend the hills to any great height. It also occurs in the southern half of the Indian Peninsula.

*Habits*.—Found in thickets and thorny scrub, flitting through the bushes, but seldom coming out into the open. It feeds on both fruit and insects. The breeding season appears to extend throughout the year, as I have taken eggs from January to November. The nest is rather a flimsy structure of twigs, placed at no great height from the ground in a thorny bush. It often contains a sprig of green leaves, on which two, or sometimes three eggs are laid. The birds sit fairly close. The eggs are blunt ovals with little difference between the two ends. They are dull white, and chalky in texture. Average size 1.21 by .96.

## 171. PHOENICOPHAES PYRRHOCEPHALUS

## The Red-faced Malkoha

*Mal-këndettā*, *mal-kōhā*, Sinhalese.

*Cuculus pyrrhocephalus* Pennant. Ind. Zool. p. 66. (1769) (Ceylon); *Phoenicophæus pyrrhocephalus*, Legge p. 255; Oates & Blan. vol. iii. p. 234;

*Description*.—Crown, sides, and back of neck black, glossed with green and streaked with white; remainder of upper plumage deep glossy green, the wing quills and tail with a bluish lustre; tail feathers with long, white tips, longest on the outer feathers; chin and feathered portion of cheeks white with black shaft streaks; throat and fore-neck glossy black; remainder of lower parts white. The feathers of the head and neck are forked; the whole side of the face from the bill

to the ears is covered with a short, stiff, crimson growth resembling rudimentary feathers.

Young birds have only a bare, brick red, naked patch round the eye; the streaks on the crown are dull gray; the black feathers on chin and throat are streaked with white; the tail feathers are shorter and less broadly tipped with white than in adults.

Bill apple green, paler below; iris in males brown, in females white; legs and feet bluish.

Length about 18; wing 6.25; tail 11; tarsus 1.4; bill from gape 1.55.

*Distribution*.—Peculiar to Ceylon; found in thick forest and heavy jungle over most of the medium and wet zones. It ascends the southern hill ranges as high as Haputale.

*Habits*.—A very shy bird, not uncommon in the wilder stretches of forest, but seldom seen near cultivation. It feeds mainly on fruit, and travels about in small parties. The breeding season appears to be about May. The nest probably resembles that of the preceding species. The eggs, two or three in number, are also similar, but slightly less chalky on the surface. They are short, broad ellipses, practically the same at both ends. Average measurement about 1.40 by 1.04.

## 172. TACCOCUA SIRKEE LESCHENULTI

### The Southern Sirkeer Cuckoo

Vernacular names not recorded.

*Taccocua leschenaulti* Less. *Traite d'Orn.* p. 144 (1830) (India); Legge p. 266; Oates & Blan. Vol. III. p. 237.

*Description*.—Upper plumage olive, or sandy brown, with a gray green gloss on the back and wings; the shafts of the feathers on the head, neck, mantle, and chest are glossy black and spiny; the middle tail feathers are of the same colour as the back, the others blackish with broad, white tips; the chin and throat are pale buff, or whitish; fore-neck and upper breast darker and grayish, or brownish; remainder of lower plumage rufous, and much darker in some birds than in others.

Bill cherry red with a yellowish tip; iris reddish brown; feet lead colour.

Length about 16; wing 6.1; tail 8.60; tarsus 1.6; bill from gape 1.4.

*Distribution*.—Found mainly in the tract between the Haputale hills and Hambantota, also on the eastern slopes of the Uva and Central Province ranges and the park country at their foot. Fairly widely distributed in South India, but nowhere common.

*Habits*.—A shy bird, found chiefly in the long grass of the patanas and park country. It feeds almost entirely on the ground. In South

India the birds breed in March and April. The nest is a loose cup of twigs lined with green leaves. The three chalky white eggs measure about 1·39 by 1·07.

### 173. CENTROPUS SINENSIS PARROTI

#### The Southern Crow-Pheasant

*Eti-kukulā, bū-kukulā*, Sinhalese ; *chempakam*, Tamil.

*Centropus sinensis parroti* Stresemann; Nov. Zool. xx. p. 323 (1913) (Ceylon); *C. rufipennis*, Legge p. 260; *C. sinensis*, Oates & Blan. Vol. III. p. 239.

*Description*.—The entire plumage, except the wings, wing coverts, and scapulars, black with a metallic gloss, which is mainly purple on the hind neck, back, and breast, and bluish green on the tail; the wings and wing coverts, scapulars, and, in some specimens, the inter-scapulars are chestnut; the tips of the quills are dusky, the wing-lining black.

Young birds are duller; the upper parts are marked with bars and spots of rufous, or white; the wings and coverts are barred with black, the tail is dark brown with narrow, whitish bars; the lower parts dull black with grayish white bars.

Albino specimens sometimes occur. Legge notices one in which the body was white and the wings light brown, and there is a pure white chick in the Colombo Museum collection.

Bill black; iris crimson; legs black.

Length 18; wing about 7·7; tail 9·75; tarsus 1·9; bill from gape 1·75.

*Distribution*.—Occurs all over the Island. The same sub-species occurs in India northward to the Ganges and Bombay.

*Habits*.—Found everywhere, except in the heart of heavy forests. It feeds on the ground on insects, small reptiles, &c., and is not averse to the eggs and young of smaller birds. It can run with considerable speed. The flight is slow and heavy. The cry is a resounding "kook-kook-kook." The breeding season continues from March till about September. The nest is a large globular affair of sticks, leaves, and grass, placed in a thick bush, or thorny tree. The three chalky white eggs are broad oval in shape, and measure about 1·34 by 1·14.

### 174. CENTROPUS CHLORORHYNCHUS

#### The Ceylon Crow-Pheasant.

*Eti-kukulā, bū-kukulā*, Sinhalese ; *chempakam*, Tamil.

*Centropus chlororhynchus* Blyth, J. A.S.B. xviii. p. 805. (1849) (Ceylon); Legge p. 263; Oates & Blan. vol. iii. p. 242.

*Description*.—Similar to the last species, only rather smaller and lighter; the gloss on the breast, hind-neck, and upper back is purple

and bronze; the wing coverts and wings are darker chestnut, and the quill tips more dusky; the feathers of the crown and nape are longer and looser, and the bill pale instead of black. The young have no distinct plumage.

Bill pale apple green, iris deep red, or dull crimson; legs and feet black.

Length about 17; wing 6·4; tail 9·25; tarsus 1·75; bill 1·7.

*Distribution*.—Peculiar to Ceylon, and practically confined to the tract between the Deduru-oya and the Nilveli-ganga. It ascends the western slopes of the hills to about 2,500 feet. It is commonest in the dense forests of the Western Province and Ratnapura District, where the rainfall is heavy.

*Habits*.—An inhabitant of the deep jungle, where the undergrowth is thick and tangled. It very seldom emerges into the open. The cry is a sonorous "hoo-whoop-whoop," given out in the morning and evening, or after rain. The breeding season appears to last from April to July. The nest and eggs are similar to those of the last species, only a little smaller.

#### 175. *CENTROPUS BENGALENSIS BENGALENSIS*

##### The Indian Lesser Crow-Pheasant

*Eti-kukulā, bū-kukulā*, Sinhalese; *chempakam*, Tamil.

*Cuculus bengalensis* Gmel. S. N. i. p. 142. (1788) (Bengal); not in Legge; Oates & Blan. Vol. III. p. 243; and IV. p. 485.

*Description*.—Considerably smaller than either of the last two species, but the adult is similarly coloured; the gloss on the body plumage is purplish, and on the tail green; the wings are deep chestnut; the wing-lining, however, is chestnut, and not black.

Young birds at first are dark brown, spotted with rufous on the head and neck, and barred with rufous on the back, wings and tail; under parts rufous white, with dark spots on the throat and dark bars on the abdomen.

*Second Stage*: Sides and top of the head and neck, the back, scapulars, and wing coverts brown with white on the shafts; the upper tail coverts are lengthened, and they and the rump are narrowly barred with black; wings and tail as in adults, save that the feathers are tipped with rufous and the wings are more dusky; the lower parts are rufous white speckled with dark brown on the throat, and with narrow, dark bars on the lower abdomen, flanks, and tail coverts. The changes from one phase to another are gradual.

Adults: Bill and legs black; iris crimson. In the young the bill and iris are yellowish. Legs lead colour.



Length about 13; wing 5·4; tail 7; tarsus 1·6; bill from gape 1·1. Females are larger: length 14·5; wing 6·7.

*Distribution*.—Mr. A. L. Butler found in the collection of a native dealer a single skin procured in the North-Western Province in April, 1896. It is possibly a rare resident. The species is found in a few localities in Peninsular India. It is commoner in Bengal.

*Habits*.—Somewhat similar to those of the common Crow Pheasant, but this species is found mainly in high grass. It feeds largely on grasshoppers. In India the breeding season lasts from May to August. The nest is a domed structure of long grass woven in among growing grass stems. Two or three chalky white eggs are laid, measuring about 1·17 by 1·01.

## Order VIII. PSITTACI

### Family PSITTACIDAE

#### *Parrots*

The *Parrots* form a distinct Order, whose nearest affinities are with the *Owls* and *Hawks*. The feet are zygodactylic; the bill is short, stout, and boldly hooked, the upper mandible is loosely articulated to the skull and is movable; the base of the bill is covered by a cere of fleshy skin; the tongue is thick and fleshy. All species lay white eggs in a hollow excavated in the stem, or branch of a tree. The young are naked when hatched. Parrots are found all round the world, mainly in the tropics; but one species occurs as far north as Carolina, United States of America, others as far south as New Zealand and Patagonia. They all have more or less the same habits, feeding on fruits and seeds and going about in flocks. The flight is swift and straight and the cry is a harsh scream. They are not well represented in India, as only three genera belonging to one family are found within Indian limits. In Ceylon we have four species of the genus *Psittacula* and one species of *Coryllis*. One form is peculiar to the Island.

#### *Key to Ceylon Psittacidae*

A.—Tail long; the middle feathers much longer than the rest.

##### Genus *Psittacula*.

- (a) Head and body green; males with, females without a rose collar on hindneck.

- (1) A large red patch on wing coverts; wing about 8.

*P. eupatria eupatria* (Large Ceylonese Paroquet).

- (2) No red patch on wing coverts; wing about 6.3.

*P. torquata* (Rose-ringed Paroquet).

- (b) Head and neck not green, or not wholly green.

- (1) Head, in males red with a purple bloom, in females bluish gray; upper back green.

*P. cyanocephala cyanocephala* (Western-Blossom-headed Paroquet).

- (2) Crown and upper back gray ; a bright green collar on neck.

*P. calthropae* (Layard's Paroquet).

B.—Tail short; size small ; length about 5·5.

*Coryllis indicus* (Ceylonese Loricet).

## 176. PSITTACULA EUPATRIA EUPATRIA

The Large Ceylonese Paroquet (Pl. XI. Fig. 1.)

*Labu-girawā*, Sinhalese ; *periya-kili*, Tamil.

*Psittacus eupatria* Linn. Syst. Nat. i. p. 140 (1766) (Ceylon) ; *Palaeornis eupatria*, Legge p. 168 ; Oates & Blan. Vol. II. p. 247.

*Description*.—Male : Upper plumage grass green, most vivid on the forehead, lores, and rump, and darker on the wings; a faint, dark stripe from the nostril to the eye; a rose pink collar round the hind neck, met by a broad, black stripe, which runs from the side of the neck to the lower mandible; the nape just in front of the collar has a grayish blue bloom; a large, dark red patch on the secondary wing coverts; the first primary and the inner webs of the remaining quills dark brown; the central tail feathers pass from green at the base into verditer blue, the tips being yellow; lower plumage dull, pale green, brightening a little on the flanks and abdomen; wing-lining and lower tail coverts pale green; lower surface of tail dull yellow.

Females and young lack the rose collar and black mandibular stripe.

Bill deep red, paler at the tip; iris pale yellow with a bluish gray inner circle; legs and feet greenish, or grayish lead colour.

Length about 19; wing about 8; tail up to 11·5; tarsus ·75; bill from cere 1. Females rather smaller.

*Distribution*.—Found in Ceylon and in Travancore, Mysore and Malabar, but closely allied forms with sub-specific differences occur throughout the greater part of India and Burma. It is widely, but rather locally distributed throughout the low-country, and is most numerous in the maritime districts of the northern half of the Island; rare above 1,000 feet, but occasionally found at higher elevations.

*Habits*.—Found in flocks, generally round villages where coconut plantations border on forest and jungle. The birds usually roost in colonies in coconut groves, flocking with loud screams towards their roosting ground just before sunset. They feed on fruit, berries, and seeds. The breeding season is from November to about March. The birds usually select natural holes in trees on the outskirts, rather than in the interior of forests, increasing these holes to a suitable depth and size. Two to four white, glossless eggs are laid. Average size about 1·2 by ·95.

177. *PSITTACULA TORQUATA*

## The Rose-ringed Paroquet

*Rana-girawā*, Sinhalese ; *kili*, Tamil.

*Psittacus torquatus* Bodd. Tabl. Pl. Enlum. p. 32. (1783) (Behar) ; *Palaeornis torquatus*, Legge, p. 171 ; Oates & Blan. Vol. III. p. 250.

*Description*.—Smaller, but very similar to the last species, and with the same sexual differences in the plumage. The present species, however, lacks the red patch on the wing coverts, and there is little or no yellow on the tips of the central tail feathers. In the males the rose collar is generally paler and narrower, and the bluish gray bloom on the neck in front of it is more pronounced. In some birds the green plumage is tinged in places with yellow.

Bill, upper mandible red, lower mandible blackish ; iris pale yellow ; legs and feet dusky slate colour, or greenish.

Dimensions are very variable : length about 15 ; wing 6·3 ; tail 9 ; tarsus ·6 ; bill from cere ·85.

*Distribution*.—The most abundant species over the greater part of the low-country, except in the wet zone ; it is not found at any great elevation. It occurs throughout India, and ranges through Pegu to Cochin-China.

*Habits*.—Found in flocks about villages and in open lands, or scrub jungle near coconuts. Like the last species, it roosts in dense flocks in coconut groves, and is very noisy when flying home in the evening. The breeding season is from Christmas time to about April. Two or three white eggs are laid in a hole in a tree. Ceylon eggs appear to be a little smaller than Indian, six in my collection average 1·16 by ·95.

178 *PSITTACULA CYANOCEPHALA CYANOCEPHALA*

## The Western Blossom-headed Paroquet

*Panu-girawā*, Sinhalese ; *kili*, Tamil.

*Psittacus cyanocephalus* Linn. Syst. Nat. i. p. 141 (1766) (India) ; *Palaeornis cyanocephalus*, Legge p. 174 ; Oates & Blan. Vol. III. p. 251.

*Description*.—Male : Head red, tinged with a purple bloom on the nape and lower cheeks ; chin, throat, and a narrow collar round the neck black ; adjoining this collar the sides of the neck and the hind-neck are verdigris green ; back and scapulars olive green ; wing coverts green with a wash of verdigris ; a red patch on the middle coverts ; inner wing quills green with pale edges, the shafts and inner margins dusky black ; the black increases on the outer quills, the first primary being almost wholly black ; rump verdigris green ; the central tail feathers

are blue with greenish bases and broad, white tips; in the next pair only the outer web is blue, the inner web being yellowish green and the tip yellow; in the remaining feathers the outer web is green, the inner web and tip yellow; lower plumage yellowish green.

Females: Head slaty with a blue bloom on the crown and nape; the black collar and throat patch are lacking, being replaced by a yellowish green ring round the neck; no red patch on the wing coverts.

Young birds are green all over, and gradually assume the coloured hood.

Bill, upper mandible orange yellow, lower blackish white, or yellowish; iris white, or yellowish white; legs and feet dusky green.

Length about 13.5; wing 5.20; tail about 7.5; tarsus .5; bill from cere .6. Females a little smaller.

*Distribution*.—Common in many parts of the low-country, but avoids the coast, and is distinctly scarce and local in the northern forest tract. In the hills it is fairly common up to 4,000 or 5,000 feet. The present sub-species is found in suitable districts throughout the greater part of India; it is replaced in E. Bengal by an allied sub-species which ranges eastwards to W. China.

*Habits*.—This species feeds largely on grain and native vegetables, and is found mainly round paddy fields and in jungle chenas. Up-country it is partial to hillside patanas. The breeding season is from February to May; the nest hole is excavated generally in the smaller limbs of dead trees. The eggs are white and glossless. They are usually four in number, and average 1.0 by .81.

## 179. PSITTACULA CALTHROPAE

### Layard's Paroquet

*Alu-girawā*, Sinhalese; *kili*, Tamil.

*Palaeornis calthropae* Layard, J. A. S. B. xviii. p. 800. (1849) (Ceylon); Legge p. 177; Oates & Blan. Vol. III. p. 256.

*Description*.—Male: Forehead, lores, and a patch round the eye green; rest of head, nape, and upper back bluish gray; lower back and upper tail coverts bluer; a broad emerald collar on the neck; chin and a broad stripe on the side of the neck dusky black; lower parts bright green; under tail coverts yellowish; wing coverts green, the smaller secondary coverts rather yellower; wing quills as in the preceding species, only the pale edges are not so noticeable; tail feathers a beautiful, deep blue with yellow tips, the outer feathers washed and edged with green.

Bill, upper mandible coral red with a yellowish tip, lower dusky red; iris greenish, or yellowish white; legs and feet greenish, or lead coloured

Females are of a duller green on the face, and the upper mandible is black. Young birds are green throughout, except the tail, which is blue.

Length about 12; wing 5.5; tail 6; tarsus .6; bill from cere .7. Females a little smaller.

*Distribution*.—Peculiar to Ceylon. The common Paroquet of the hill-country, but rather local, and in some localities replaced by the Blossom-headed Paroquet. It also extends into the forest at the foot of the hills.

*Habits*.—A forest bird feeding on jungle fruits, such as wild figs and wild cinnamon, also on flower buds. It is found in fair-sized flocks on the outskirts of woods, in open spaces in the jungle, and in the wooded gorges of patanas. The cry is harsher than that of the last species. The breeding season lasts from January to May; the nest and eggs are of the usual type. The nest hole is often in dead coconut trees, sometimes high up in big forest trees. The eggs are from one to three in number, the texture is dull, and rather soft and porous. Average size about .97 by .78.

[*Note*. *Psittacula columboides* (The Blue-winged Paroquet) is said to have been recorded from Ceylon, but probably in error. It is a hill species, more or less of the same type as *P. calithropae*, and occurs in the hill forests of the Malabar Coast. It may be recognized by the blue wing quills, and by the fact that the breast as well as the crown and upper back are dove gray in males and greenish gray in females. Length about 15; wing 6.5; tail 8.5.]

## 180. CORYLLIS INDICUS

### The Ceylon Loriquet

*Malichchā*, *pol-girawā*, Sinhalese; *kanni-kili*, Tamil.

*Psittacus indicus* Gmel. S. N. i. p. 349, (1788) (Ceylon); *Loriculus indicus*, Legge p. 180; Oates & Blan. Vol. III. p. 262.

*Description*.—General colour of upper parts green; crown deep red passing into orange on the nape; back and scapulars faintly washed with orange; rump and upper tail coverts deep red; wings and tail rather deeper green; inner webs of wing quills dusky black, the outer primary almost wholly black; cheeks and lower plumage paler green, the throat faintly washed with blue; under surface of wing and tail quills verditer blue.

In young birds the crown is green, the crimson tint being assumed gradually.

Bill orange red, paler at the tip; cere yellow; iris white; legs and feet dusky yellow.

Length 5·5 ; wing 3·7 ; tail 1·75 ; tarsus ·45 ; bill from cere ·5.

*Distribution*.—Widely distributed in many parts of the low-country, commonest in the south-west of the Island, almost wholly absent from the arid maritime region, and local in the northern forest tract. It is common in the hills up to about 4,000 feet, and during the north-east monsoon is found at even higher elevations. It also occurs in S. Travancore.

*Habits*.—Found in native gardens, or in any jungle which contains the fruit and flowers on which it feeds. It is a ravenous eater, and is specially fond of kitul toddy, on which it will gorge until stupefied. The flight is swift ; the cry is a shrill little scream. The breeding season lasts from March till June. For its nest it chooses a small natural cavity in a tree, excavating the interior to a depth of 2 to 4 feet. The clutch consists of two or three eggs, laid on a pad of green leaves spread about an inch thick at the bottom of the hole. They are white and glossless, and measure about ·75 by ·62.

## Order IX. STRIGES

### *Owls*

The Owls form a naturally marked Order, lying between the Parrots and the Birds of Prey. They are birds, mainly nocturnal, of very distinctive appearance. The whole plumage is soft and fluffy. In most genera the head is large and densely feathered; the big, round eyes are directed forwards, and are circled with disks of radiating feathers, which may be bordered by a close-set ruff. Many species bear, above the eyes, upstanding tufts of feathers known as aigrettes, horns, or ear tufts. The bill is short, curved, and hooked; its base is furnished with a cere, which is usually covered by stiff bristles concealing the nostrils. The ear openings are generally of large size, and are often protected by a lid, or "operculum." The legs are usually, but not always, completely feathered down to the toes. The feet are strong, the toes have sharp, curved claws of moderate length; the hallux, or hind toe is always present, the outer toe is reversible. The coloration, as might be expected in nocturnal birds, is mainly some combination of brown, or rufous. Most species breed in hollow trees and lay white eggs, which are almost spherical. The young when born are helpless and covered with down. Owls are carnivorous, the larger species preying chiefly on small mammals and birds, while the smaller forms feed mainly on beetles and various other insects.

*Members of the Order are found all over the world, and from their silent ghost-like flight, their large eyes, nocturnal habits, and weird cries have always been looked upon in all countries as birds of ill-omen. The usual call is either a hoot, or a shriek, but in the forests of India and Ceylon eerie, strangled sounds are heard at night, and are usually supposed to be the alarm calls, or mating cries of one or other of the Owls. In Ceylon the identity of this "Devil Bird" is still a subject of much discussion and conjecture. From personal experience, inquiries, and the evidence recorded, I am convinced that the cries vary considerably, and probably are not all made by the same species. In the northern forest tract the cry usually heard is a loud, piercing, single scream, which is audible at a great distance. The villagers in the interior of the Puttalam District ascribe this call, not to an Owl, but to the Crested Hawk-Eagle—*S. cirrhatus*—and I believe that in some cases they are right. I have heard this cry at night in the North-Central Province, and although the effect was blood-curdling, there was a ring in it not altogether unlike the ordinary note of an eagle. The calls*



described by other observers in the central and southern parts of the Island differ so from this cry that they seem fairly obviously to be uttered by some other bird, and it is not improbable that more than one species is responsible. Four Owls are held in suspicion. Native legends and belief point to the Brown Wood-Owl—*S. indranei indranei*—a fairly common, large species. Its ordinary note is a resounding "too-who," but tame birds have been known to utter dismal, wailing sounds. (*vide* Legge, p. 158 where the question is discussed at some length.\*)

Another bird with equal claims is the Forest Eagle-Owl—*H. nipalensis*.

There is in the Colombo Museum a skeleton of this owl, presented by J. H. Stephens, who stated that he shot it while uttering the cries of the Devil Bird. It is, however, a rare species in Ceylon, though the few specimens recorded come from widely distributed localities, both in the hills and in the low-country. Others, again, state that the Devil Bird is a "small, whitish bird," which would point to the Ceylon Bay-Owl—*P. badius assimilis*. This is also a rare bird, peculiar to Ceylon, and as yet recorded only from the hills and from the forest at their bases. An allied sub-species from northern India—*P. badius badius*—is said to make an appalling noise. The latter two species are probably genuine "Devil Birds," but as they are either rare, or restricted in range, and as the Devil Bird's cries are reported from all over the Island, I cannot imagine that they are the sole authors of the ill-omened sounds.

Lastly, the Brown Hawk-Owl—*N. scutulata hirsuta*—a small species found all over the Island, is mentioned by several Indian observers as making noises like a strangled cat, or a hare caught by hounds. It has not, however, been regarded with suspicion in Ceylon.

The order is divided into two Families, the distinction being founded solely on osteological characters, there being no external differences of any importance. In the family *Tytonidae*, which includes only one of the eleven species found in Ceylon, the skull is long and narrow, and the "furcula," or merrythought is united to the keel of the breastbone. In the *Asionidae* the skull is broader, and the furcula is not in contact with the keel of the breastbone.

## Family TYTONIDAE†

### Screech Owls

This is a small Family, containing only two genera, one of which—*Tyto*—is world-wide, the other confined to Madagascar. In the genus

\* The cries described in the letter from Mr. Mitford, quoted in the passage here alluded to, as having been "heard on the rock at the back of the Residency at Kurungniau," are probably those made by the Flying Squirrels, which still haunt the same locality and utter wailing calls at night-time.

† As the generic name *Nixis* belongs by priority to a genus in another family the next available name *Tyto* is used for the genus, and the family name altered to correspond.

*Tyto* there are no ear tufts, the facial disk is large and full, and completely surrounded by a ruff of stiff feathers. The bill is weak and compressed, the nostrils are oval; the wings are long and pointed, and when closed reach beyond the tail. The legs are long, the upper part of the tarsus is feathered; on the lower tarsus and toes the feathers become bristles. The middle toe is of about the same length as the inner; the middle claw is serrated on the inner margin. Only one species, the Barn Owl, is found in the Island. It may be distinguished from all other Ceylon Owls by its pale plumage, and by the combination of the long, pointed wings with the slightly serrated comb on the middle claw. The Bay Owl has a serrated middle claw, but the wings are comparatively short and rounded.

### 181. TYTO ALBA JAVANICA

#### The Indian Barn Owl

*Bakamunā*, Sinhalese; *chava-kuruvī*, Tamil.

*Strix javanica* Gmel. Syst. Nat. i. p. 295 (1888) (Java); *S. flammea*, Legge p. 164; Oates and Blan. Vol. III. p. 264.

*Description*.—Facial disk white, a rufous patch in front of the eye; ruff feathers white, the outer feathers rufous towards the end and with dark brown tips; back and upper parts tawny buff and stippled gray, with a small, eye-shaped spot of black and white at the end of each feather; wing quills tawny brown with mottlings and irregular cross bands of dark grayish brown and a large amount of white on the inner webs; tail tawny brown with four wavy, slightly mottled bars of dark brown, the tip mottled white and dark brown, with some traces of eye spots as on the back; the underside of the tail feathers white; lower parts white, more or less tinged on the flanks and thighs with very pale buff, and with scattered, small, triangular, dark spots, mainly on the sides of the breast, the flanks, and wing-lining.

Bill fleshy white; cere flesh colour; iris black; bare portion of legs and feet fleshy brown.

Length about 14; wing 11.25; tail 4.75; tarsus 2.5; bill from gape 1.5

*Distribution*.—In Ceylon practically limited to the Jaffna peninsula; a few specimens have been recorded from the north-west coast as far south as Puttalam. The species occurs all over the world in tropical and temperate regions, and is divided into several sub-species. The present form occurs all over India and S. Eastwards to Java.

*Habits*.—A thoroughly nocturnal bird, frequenting house roofs, out-houses, old buildings, ruins, or occasionally old, hollow trees. In Jaffna it haunts the old drainage outlets from the bastions of the fort into the moat. It feeds almost entirely on rats and mice. The cry is

a loud and rather weird screech. The birds are noisiest in the breeding season, which at Jaffna is in June and July. The eggs are laid in some hole in a building, or tree, generally there is no nest lining, in some cases a few sticks are placed on the floor of the hole. The eggs vary in number from 3 to 6; the shape is roundish oval, the colour white with a creamy tinge, the measurement about 1.69 by 1.28.

### Family ASIONIDAE

The Family comprises ten out of our eleven species. It is again divided into three Sub-families as follows :—

*Photodilinae*.—Facial disk and ruff well marked; ear orifice smaller than the eye, and not furnished with an operculum; inner margin of the middle claw with a small, serrated comb.

*Asioninae*.—Facial disk and ruff well marked; ear orifice larger than the eye; an operculum present; middle claw not serrated.

*Buboninae*.—Facial disk and ruff not well marked; ear orifice smaller than the eye; middle claw not serrated.

### Sub-family PHOTODILINAE

#### *Bay Owls*

This Sub-family is limited to a single species, with two sub-species, one of which is peculiar to Ceylon. Both are of medium dimensions, being slightly under a foot in length. As in the genus *Tyto*, the inner margin of the middle claw is furnished with a slightly serrated, file-like process, or comb. The wings, however, are much shorter and rounded. The tarsus is feathered throughout, the inner toe is longer than the middle. The facial disk is very distinct, but the ruff is not quite complete above the eyes. The Ceylon species can be told apart from all our other Owls by the pinkish tinge of the face and lower parts.

### 182. PHOTODILUS BADIUS ASSIMILIS

#### The Ceylon Bay Owl

*Bassā*, Sinhalese; *āndai*, *pakkul* (E.P.), Tamil.

*Phodilus assimilis* Hume S. F. i.p. 429 (1873) (Ceylon); Legge p. 161; *Photodilus assimilis*, Oates & Blan. Vol. III. p. 269.

*Description*.—Forehead and facial disk vinous pink; feathers round the eye chocolate; ruff white tipped with chestnut and black; feathers

of the crown and nape dark chestnut, flecked in the centre with black and paler chestnut, a few feathers sometimes whitish; remainder of upper parts a mixture of chestnut and rich tawny buff, marked with smallish, triangular spots of black, which on the scapulars and wing coverts are flecked with white; wing quills chestnut on the outer, dark grayish brown on the inner webs, both webs being barred with black; on the long winglet feathers, on the outer web of the first primary, and on the ends of the outer webs of the next two or three primaries the spaces between the black bars are white; tail rufous chestnut with narrow, black bars; throat and chest buff, shading into pale vinous pink on the remainder of the under parts; most of the feathers with two dark brown spots on the centre; the thigh plumes sometimes silky white; wing-lining buff with a patch of deep chocolate brown at the base of the primaries.

Bill greenish white; iris dark brown; feet pale whitish green.

Length about 11; wing 7.75; tail 3.5; tarsus 1.65; bill from gape 1.25.

*Distribution*.—A rare form peculiar to Ceylon. A few specimens have been obtained in the hills under 3,000 feet, and in the forest country at the foot of the ranges. An allied sub-species occurs in the Eastern Himalayas, Burma, Java &c.

*Habits*.—There is little on record regarding these. The species is nocturnal and lives in the forest. The nest has been found on Martin's town estate, near Rakwana. It was made in the hole of a tree, and was composed of dry twigs, moss, and feathers. The parent bird and three young were taken from the nest in November, so it would appear to breed towards the end of the year and to lay three eggs. As stated in the remarks on the Order, this Owl is probably the author of some of the cries of the Devil Bird. Mr. E. C. Stuart Baker informs me that the North Indian form—*P. badius badius*—makes a noise "like half a dozen mad cats."

#### Sub-family ASIONINAE

#### *Eared Owls and Wood Owls*

The two Ceylon members of this Sub-family are of fairly large size. The ear orifice is larger than the eye, and is furnished with an operculum. The facial disk is well marked and the ruff distinct. The tarsus and upper surface of the toes are fully feathered. The legs and feet are fairly strong, but not so stout and formidable as in the Fish and Eagle Owls.

*Key to Ceylon Asioninae*

- A.—Length about 15; wings long and pointed; ear tufts well marked.  
*Asio flammeus flammeus* (The Short-eared Owl).  
 B.—Length about 18; wings rounded; no ear tufts.  
*Strix indranee indranee* (The Brown Wood Owl).

**183. ASIO FLAMMEUS FLAMMEUS**

**The Short-eared Owl**

*Bassā*, Sinhalese; *āndai*, *pakkul* (E.P.), Tamil.

*Strix flammea* Pontoppidan, *Danske Atlas*. i. p. 617. xxv. (1763) (Denmark); not in Legge; *Asio accipitrinus*, Oates & Blan. Vol. III. p. 271.

*Description*.—Facial disk pale tawny buff, the feathers round the eye black; the ruff rich buff, streaked and speckled with dark brown; upper plumage buff, broadly streaked and mottled with dusky brown; on the scapulars and longer wing coverts the buff colour is paler; primary quills chestnut buff with broad tips and irregular bands of dark brown; secondaries buff, banded with brown; tail tawny buff with irregular, brown bars; lower parts buff with longitudinal streaks of brown, broad on the breast and narrow on the abdomen; the lower abdomen, legs, and under tail coverts are unmarked.

Bill black; iris deep yellow; claws black.

Length about 15; wing 12.25; tail 6; tarsus 1.6; bill from gape 1.2.

*Distribution*.—On several occasions in recent years this Owl has visited Ceylon in some numbers. In November, 1896, seven specimens were recorded from Jaffna, and next February two from the Horton Plains. There was another strong invasion about Christmas, 1904, when ten specimens were obtained in Colombo alone. Two specimens visited Colombo Race-course in January, 1924. This owl is a migrant, found almost all over the world, breeding in temperate climates, and visiting warmer regions in winter. The present sub-species is found over most of Europe and Asia, and in N. Africa and N. America.

*Habits*.—In Ceylon most of the specimens have been secured immediately on their arrival. In India this Owl is met with chiefly in grass plains, but sometimes in low bush, or cultivated lands. It is largely nocturnal, and feeds principally on small mammals.

**184. STRIX INDRANEE INDRANEE**

**The Brown Wood Owl (Pl. XI. Fig. 2.)**

*Ulamā*, Sinhalese; *āndai*, *pakkul* (E.P.), Tamil.

*Strix indranee* Sykes, P.Z.S. 1832, p. 62 (Deccan); *Syrnium indrani*, Legge p. 155; Oates & Blan. Vol. III. p. 275.

*Description*.—Loral plumes black, fringed with dirty white; facial disk rufous tawny, whitish above the eyes, the feathers round the eye black; ruff and chin dark chocolate brown; crown and upper plumage dark sepia brown; scapulars, wing coverts, rump, and upper tail coverts paler, and with narrow, whitish bars; wing quills deep brown with paler brown crossbars; tail feathers brown with narrow, white tips and cross-bars; under parts and legs whitish, or yellowish, closely barred with dark brown.

In young birds the feathers have broad, whitish edges, the whole of the upper plumage is barred, but the under parts are white, and only gradually assume the barring of the adult phase.

Bill bluish near the cere, whitish horny near the tip; cere dusky bluish; iris deep brown; claws bluish.

Length about 18; wing 12.25; tail 7; tarsus 2.15; bill from gape 1.5. Males slightly smaller than females.

*Distribution*.—May be met with in forest over the whole of Ceylon from sea level to Nuwara Eliya. In India the species is rarely found on the plains, but occurs in the Himalayas and on the hills of the Malabar Coast. It has been recorded from a few other localities in India proper, Burma, and Formosa. The present sub-species is confined to Ceylon and the S. Indian Hills.

*Habits*.—A fairly common bird, found mainly in heavy jungle. At times it may be seen during the day being mobbed by Drongos and other small birds. It feeds on small birds, lizards, and, at any rate in captivity, on small fish. The note is of four syllables. "oot-oot-tu-whoo," but the first two syllables can only be heard when close at hand. As noted in my remarks on the Order, this is the species commonly credited with the cries of the Devil Bird. The breeding season is during the early part of the year; two eggs are laid in a hole in a large tree, but in India stick nests have been found, placed on a rocky shelf, or in the fork of a tree. The eggs are of the usual Owl type. North Indian eggs measure about 2.25 by 1.81.

#### Sub-family BUBONINAE

##### *Fish Owls, Eagle Owls, and Owlets*

This Sub-family comprises a much larger variety of forms than the other two, and includes seven Ceylon species: our two largest Owls and five Owlets.

The Fish and Eagle Owls are large birds with well marked ear tufts, powerful beaks, stout legs and feet, the latter armed with powerful

talons, and rounded wings. The Fish Owl, as suits its mode of life, has a naked tarsus; the Eagle Owl has its legs feathered to the toes, and differs from most Owls in possessing a completely distinct immature plumage.

The Owlets fall into three genera: *Otus*, with ear tufts and a streaky upper plumage; *Glaucidium*, with no ear tufts and a barred upper plumage and *Ninox*, which is very Hawk-like in appearance, as it possesses no ear tufts, and the ruff and facial disk are not developed.

*Key to Ceylon Buboninae*

I.—Size large; length 20 or over; ear tufts present.

(1) Tarsus naked.

*Ketupa zeylonensis zeylonensis* (The Brown Fish Owl).

(2) Tarsus feathered.

*Huhua nipalensis* (The Forest Eagle Owl).

II.—Size small; length under 12.

A.—Ear tufts well developed. Genus *Otus*.

(1) Wing about 5.25; third primary longest, first longer than eighth.

*Otus scops minutus* (The Ceylon Scops Owl).

(2) Wing about 5.85; fourth or fifth primary longest, first much shorter than eighth.

*O. bakkamoena bakkamoena* (Collared Scops Owl).

B.—Ear tufts absent.

(a) Upper plumage barred. Genus *Glaucidium*.

(1) Abdomen transversely barred.

*G. radiatum malabaricum* (Malabar Jungle Owlet).

(2) Abdomen longitudinally streaked.

*G. radiatum castanopterum* (Chestnut-backed Owlet).

(b) Upper plumage not barred.

*Ninox scutulata hirsuta* (Ceylon Brown Hawk Owl).

# 185. KETUPA ZEYLONENSIS ZEYLONENSIS

## The Brown Fish-Owl

*Bakamūnā*, Sinhalese; *āndai*, *āmalan-kuruvi*, Tamil.

*Strix zeylonensis* Gmel. Syst. Nat. i. p. 287 (1788) (Ceylon); *Ketupa zeylonensis*, Legge p. 127; Oates & Bian. Vol. III. p. 281.

*Description*.—Bristly loreal plumes white at the base, black toward the tips; cheeks tawny with black shaft stripes; upper parts light chest-

nut brown with broad, black shaft stripes; lower back, rump, and upper tail coverts a little paler and with narrow shaft stripes; scapulars, tertiaries, and wing coverts considerably mottled with whitish, the outer webs of the outer scapulars white; wing quills and tail feathers dark brown, barred and tipped with dusky buff, which becomes almost white on the outer webs of the larger primaries; throat white with dark shaft stripes, in some birds the white throat patch is almost absent; feathers of remaining lower parts with fine, wavy, pale brown crossbars and bold, black shaft streaks.

Bill yellowish green; cere pale dusky green; iris golden yellow; legs greenish, or yellowish.

Length about 21; wing 15; tail 7.5; tarsus 2.75; bill from gape 2.

*Distribution*.—Fairly common and well distributed over the whole of the low country, ascending the larger river valleys up to about 3,000 feet. The present form occurs in suitable localities throughout the Indian Empire, extending eastwards to China. Allied sub-species are found in the Himalayas, Malaya; &c.

*Habits*.—This species is generally found in fairly thick jungle near water. During the daytime it roosts in large trees. Its cry is a deep, triple note "tu-whoo-hu." Its food is composed mainly of fish, but it will also eat small animals, snakes, large beetles, &c. It breeds about April, making a scanty stick nest on the ledge of a rock near water. At times it will lay in the hollow of a tree, or even appropriate the deserted nest of a Fish Eagle. The two white, broad, oval eggs are fairly glossy, and measure about 2.30 by 1.75.

## 186. HUHUA NIPALENSIS

### The Forest Eagle-Owl

*Loku-bakamūnā*, Sinhalese; *periya-āndai*, Tamil.

*Bubo nipalensis* Hodg. As. Res. xix. p. 172 (1836) (Nepal); Legge p. 131; *Huhua nepalensis*, Oates & Blan. Vol. III. p. 287.

*Description*.—Bristly loreal feathers, cheeks and ear coverts grayish buff with rather darker shafts; ear tufts blackish brown, sometimes barred on the inner webs with whitish buff; upper plumage glossy sepia brown with narrow cross bands and edges of tawny buff; on the scapulars and wing coverts these pale cross bands become broader and are mottled with brown; wing quills dark brown with bands of smoky gray; tail with mottled bands and tips of buff; lower parts white, at times tinged with buff, with broad, brown, crescent-shaped bars.

Young birds are white, or buff, with crescent-shaped dark brown bars on both upper and lower plumage; quills and tail feathers as in adults.



Bill yellow ; iris brown ; toes yellow.

Dimensions variable ; females, as a rule, are larger than males. Length about 23 ; wing 15.3 to 18 ; tail 7.5 to 9.5 ; tarsus 2.60 ; bill from gape 2.

*Distribution*.—Not very common, but found apparently as much in the low-country forests as on the hills. Specimens in the Colombo Museum come from Kurunegala ; Giriulla, North-Western Province ; and Batticaloa. If this species is the only Devil Bird, it is found fairly generally throughout the Island. In India, like *Strix indranees* this is a hill species, occurring in the lower Himalayas and the hill ranges of Assam and Southern India ; also, but rarely in Burma.

*Habits*.—A forest bird, but found more in scattered clumps of large timber, such as the wooded gorges of the patanas, and on the edges of thick forest than in the heart of the jungle. Not much is known of its mode of life, as it is a nocturnal bird seldom seen. To judge from its size and powerful talons, it probably hunts fairly large game, and appears to live mainly on birds. In India it is credited with killing pheasants, hares, and even young deer. The cry is described by Jerdon as a low, deep, and far-sounding moaning hoot. I have discussed in my remarks on the Order the claims of this species to be the Devil Bird. Nothing appears to be known of its breeding habits in Ceylon. In India the nest has been found in Northern Cachar. It consisted of a broad platform of sticks and grass, placed about 6 feet from the ground in a large fig tree. One white egg of the usual type measured about 2.21 by 1.87.

## 187. OTUS SCOPS MINUTUS

### The Ceylon Scops Owl

*Punchi-bassā*, Sinhalese ; *sinna-āndai*, *nattu*, Tamil.

*Scops minutus* Legge, A.M.N.H. (5) i. p. 175 (1878) (Ceylon) ; do. Birds of Ceylon p. 143 ; *Scops sunia*, Legge p. 13 ; *S. giu*, Oates & Blan. Vol. III. p. 291.

*Description*.—General colour, above, grayish brown, more or less tinged with rufous, finely stippled with black and white, and with dark shaft-stripes and some lighter patches ; the lores are whitish, some of the bristles with black tips ; remainder of facial disk light grayish brown with slightly darker markings ; ruff feathers narrowly tipped with black ; the outer scapulars have the outer webs whitish tipped with black ; wing coverts with pale spots, which are sometimes indistinct ; wing quills rufous brown with irregular, dark barrings and pale patches, most distinct on the outer webs of some of the primaries ; tail pale sandy brown, mottled and irregularly barred with darker brown ; lower parts

grayish buff, vermiculated with sandy brown, and with irregular, but fairly conspicuous shaft-stripes of blackish brown.

*Rufous Phase*.—The ground colour of the upper plumage, including wings and tail, almost uniform, pale rufous chestnut with black shaft-stripes, most conspicuous on the head; the white outer webs of the scapulars stand out most distinctly, and are bordered behind with black; lower parts much the same as in the gray phase, but tinged with rufous.

Bill olive brown; cere greenish; iris yellow; feet fleshy brown.

Length about 6.5; wing 5.25; tail 2.2; tarsus .75; bill from gape .75.

*Distribution*.—A variety of gray, Indian forms, formerly divided into several species, are now regarded as merely local races of *Otus scops*, which ranges over central and southern Europe and Asia and the greater part of Africa. Of these local races, our Ceylon bird—Legge's *S. minutus*—is the smallest and darkest. *S. sunia* of some authors is held to be merely a rufous phase, which may occur in any of the Indian forms. Both the rufous and gray birds are extremely rare in Ceylon, but have been recorded from a few widely scattered localities both in the hills and the low-country.

*Habits*.—Found in the outskirts of jungle, or in isolated thickets and round lonely bungalows. A nocturnal species, feeding on insects and at times small birds and mammals. The cry according to Legge is a feeble "woot-woot." This agrees with the note recorded for the Indian species. A.L. Butler,\* however, says the note of the Ceylon bird is "hoot-cooroo." Legge noticed a similar call, but thought it was possibly the cry of *Ninox scutulata*. This cry may be heard at night at several of the wilder circuit bungalows and resthouses in the northern forest tract. It is really a four-syllabled cry, "wook, took-tooroo," the first note not carrying so far as the others. I am inclined to put it down as the call of *Batrachostomus moniliger*, as the cadence seems more like the note of a Nightjar than of an Owl. The point requires further elucidation. Little is known of the nidification in Ceylon, but such a well-marked local race must breed in the Island. Indian forms are largely migratory, but breed in certain hill localities, laying three or four white eggs in holes of trees.

### 188. OTUS BAKKAMOENA BAKKAMOENA

The Collared Scops Owl (Pl. XI, Fig. 3.)

*Punchi-bassā*, Sinhalese; *sinna-āndai, nattu*, Tamil.

*Otus bakkamoena* Pennant, Ind. Zool. p. 3. (1769) (Ceylon); *Scops bakkamuna*, Legge p. 135; *S. bakkamoena*, Oates & Blan. Vol. III. p. 297.

\*Journal Bombay Nat. Hist. Soc. Vol. XII. p. 570.

*Description.*—Bristly loreal feathers grayish, or buffy white, tipped with black; facial disk grayish, or at times rufescent, with darker pencillings; ruff feathers buff, boldly tipped with blackish brown; the forehead, a broad eyebrow, and the inner webs of the ear tufts grayish, or buffy white, pencilled with black; upper plumage buff, or grayish, finely vermiculated with blackish brown, and with broad, black shaft-stripes on some of the feathers; crown and nape almost black, more or less mottled with buff; a more or less distinct collar on the hind-neck, formed by buff feathers with dark edges; the outer webs of the outer scapulars are buff bordered with black; wing quills brown with paler mottled bands and tips, the pale bands becoming white patches on the outer webs of the primaries; tail brown, mottled and banded with smoke gray or tawny; chin buff, or whitish; throat, breast, and remainder of lower parts grayish, or tawny buff, more or less marked with fine, wavy crossbars of brown and with occasional, bold, black brown shaft-stripes; legs, vent, and under tail coverts generally unmarked. Some birds are grayer, others more rufous.

Bill grayish horny, darker above; iris chestnut, or reddish yellow; feet brownish olive, or greenish.

Length 8; wing 5.85; tail 2.6; tarsus 1.25; bill from gape .85.

*Distribution.*—The commonest small Owl in the Island; most abundant in the west and south, especially near the sea, rarer in the north and east. In the lower hills it is found up to about 3,000 feet. The species occurs all over the Indian Empire and Malaya, including the Archipelago. As is in the last species, there are several distinct local races. The sub-species found in Ceylon also occurs in S. India.

*Habits.*—A nocturnal species, occurring largely in cultivated country, and even in town gardens. Its monotonous, little "wok-, wok" is frequently heard after dark in Colombo. The birds go about in pairs. For months a couple slept every day, side by side, in a tall, shady thorn bush in my compound at Puttalam. It feeds mainly on insects and other small fry. The breeding season appears to be about February, March, and April. It nests in hollow trees, or in the angle between the frond and stem of a palm. A few leaves, or blades of grass are sometimes placed as a lining, but in the only two nests I have found the eggs were laid on the chips of rotten wood at the bottom of the hole. In Ceylon two eggs appear to be the usual number, occasionally three. They are of the usual shape, almost spherical, and not very glossy. They soon become stained with yellow. The average of four Ceylon eggs is 1.24 by 1.09.

189. *GLAUCIDIUM RADIATUM MALABARICUM*

## The Malabar Jungle Owlet

*Punchi-bassā*, Sinhalese; *sinna-āndai*, *pakkul* (E.P.), Tamil.

*Glaucidium malabaricum* Sharpe. Cat. B. M. ii. p. 218. (1883) (Malabar); *G. radiatum*, Legge p. 152; Oates & Blan. Vol. III. p. 306.

*Description*.—Lores whitish with dark tips; the sides of the head and neck, the crown and the upper plumage, the wing coverts, tertiaries, and upper tail coverts dark brown with narrow bars of pale rufous, or white; some white spots on the scapulars and wing coverts; wing quills barred with rich, dark brown and rufous, the latter colour paling into whitish at the edge of the larger primaries and near the tips of the secondaries; tail feathers black brown with narrow, white tips and crossbars; chin and a band on each side of the throat whitish; remainder of lower parts whitish buff with numerous bars of olive brown, which become rather arrow-shaped on the abdomen and fade away on the legs and lower tail coverts.

Bill greenish horny; cere greenish; iris yellow; feet greenish yellow. Length 8; wing 5.1; tail 2.6; tarsus .9; bill from gape .75.

*Distribution*.—Fairly widely distributed over the drier parts of the southern half of the Island, being commonest in the Eastern Province. It is found also in the Uva hills. The same sub-species occurs in well-wooded country on the Malabar Coast.

*Habits*.—Found in tall forest and dense jungle, or occasionally in scrub jungle near the sea. It is very seldom seen, but its presence may be detected by its peculiar call, which is uttered during the daytime when the weather is dull, or cloudy. This call is described by Legge as "starting with the syllable "kāow," slowly repeated, and gradually accelerated until changed to "kāow whap, kāow whap," which increases in loudness till suddenly stopped." Its flight is straight and strong. It feeds on beetles and other insects, and also on small birds, even attacking young chickens. In India it breeds during April and May in holes of trees, laying two or three, smooth, white, glossless eggs averaging 1.25 by 1.06.

190. *GLAUCIDIUM RADIATUM CASTANOPTERUM*

## The Chestnut-backed Owlet

*Punchi-bassā*, Sinhalese; *sinna-āndai*, *pakkul* (E.P.), Tamil.

*Athene castanopterus* apud Blyth, J. A. S. B. xv. p. 280. (nec Horsf) (1846) (Ceylon); *Glaucidium castanonotum*, Legge p. 149; Oates & Blan. Vol. III. p. 307.

*Description*.—Lores whitish with dark tips, whole head, sides and back of neck, throat, chest, and sides of breast dark brown with narrow,

transverse bars of whitish buff; on the back and sides of the lower neck the bars are broader and pure white, forming a broken, white collar; the back, scapulars, wing coverts, and tertiaries reddish chestnut with faint, dark bars; at times there are some pale spots on the scapulars and wing coverts; wing quills brown with rufous bars, which become almost white on the inner webs of the secondaries; upper tail coverts and tail brownish black with narrow, white crossbars; chin and a band on each side of throat white; a white patch in the centre of the fore-neck; centre of breast and remainder of lower parts white, with broad, longitudinal streaks of dark brown on the abdomen and thigh plumes.

Bill greenish horny; cere dusky greenish; iris yellow; feet olivaceous.

Length 7.5; wing 5.15; tail 2.5; tarsus .85; bill from gape .75.

*Distribution*.—This form, which Stuart Baker regards as merely sub-specifically distinct from the last, is peculiar to Ceylon. It occurs in the wetter hills, the forest tracts at their base, and the wet zone of the low country, being not uncommon round Colombo.

*Habits*.—Occurs in forest, or jungle, also in thickly planted native gardens. A shy bird, keeping to the top branches of tall trees. It is fairly diurnal in its habits. The note is a curious little "craw." Like other small Owls, it feeds on insects, lizards, small birds, mice, &c. It breeds from March to May in holes in trees, laying two white oval eggs on the bare wood. Average size 1.37 by 1.11.

## 191. NINOX SCUTULATA HIRSUTA

### The Ceylon Brown Hawk-Owl

*Punchi-bassā*, Sinhalese; *sinna-āndai*, Tamil.

*Ninox hirsuta* Temm. Pl. Col. 289. (1824) (Ceylon); *N. scutulata*, Legge p. 145; Oates & Blan. Vol. III. p. 309.

*Description*.—Feathers of the lores and edge of the forehead white at the base and black at the tip; the sides of the head and neck, the crown, and upper plumage chocolate brown, often grayer on the head and neck; some concealed, white patches on the outer scapulars; edge of wing white; wing quills brown, crossed by narrow bars, which at the ends of the primaries are only slightly paler than the ground colour, but become white on the inner webs of the secondaries and across the tertiaries; tail feathers equally barred with black and smoky brown, and tipped with whitish; chin and upper throat dirty-white with black shaft-stripes; fore-neck, breast, and flanks rich chocolate brown with paler lateral margins; lower down these lateral margins increase and become white, while the brown centres of the feathers dwindle into heart-shaped spots on the abdomen, and into bars on the thighs; lower tail coverts almost entirely white.

Bill bluish black ; cere dull greenish ; iris golden yellow ; feet dusky yellow.

Length about 11·5 ; wing 7·65 ; tail 4·5 ; tarsus 1 ; bill from gape ·85.

*Distribution*.—Fairly widely distributed throughout the low-country and in the hills up to about 4,000 feet. Our Ceylon form is a distinct sub-species of an Owl, which occurs in the well-wooded parts of the Indian Empire, ranges throughout the Oriental region, and is divided into several geographical races.

*Habits*.—Found mainly in thick jungle, preferably on the borders of tanks, or on river banks. The cry, much more musical than that of other Owls, is a clear low “coo-ook,” which may be heard, especially on moonlight nights, soon after sunset and again towards midnight. It also continues to call in the morning till some time after sunrise. This species feeds almost entirely on insects. It breeds from about Christmas to April, laying two or three, almost spherical, white eggs in holes of trees. A Ceylon egg measured 1·45 by 1·27.

## Order X. ACCIPITRES

### *Birds of Prey*

The diurnal Birds of Prey found in the Indian region fall into a very natural group, with the Osprey forming a probable connecting link between the rest of the Order and the Owls. By some authors, indeed, the Osprey is placed in an intermediate order, but Blanford includes it in the *Accipitres*, giving it rank only as a separate Family.

The *Accipitres*, which are found all over the world, agree with the Owls in the structure of the palate, in the strong, much hooked beak, furnished with a cere, and in their curved claws. They differ in the position of their eyes, which are directed laterally and not forwards, while the plumage is firmer and not so fluffy. The females in most species are larger than the males. The young when hatched are helpless and covered with down. The nest is usually a large structure of twigs placed in a tree, or on a rocky ledge. The eggs are often white, but generally more or less blotched with red, or brown.

Indian members of the Order are divided into three Families :—

(1) *Pandionidae*—The Osprey, in which the outer toe is reversible, i.e., provided with more or less the same power of movement as the human thumb, and capable of being directed backwards, or forwards. The contour feathers are not provided with an after-shaft.

(2) *Gypidae*—Vultures. In this Family the contour feathers are provided with an after-shaft, while the outer toe is not reversible. The crown of the head is either wholly naked, or covered only with down.

(3) *Falconidae*.—Eagles, Hawks, and Falcons. These agree with the Vultures in the non-reversible outer toe and the presence of an after-shaft, but have the crown of the head fully feathered.

### Family PANDIONIDAE

#### *The Osprey*

The Osprey, or Fishing Hawk, as stated before, differs from all the other members of the Order in having no after-shaft to the feathers, and in possessing a reversible outer toe.

The Family is confined to a single genus and species, which, however, is found nearly all over the world. The bill is of moderate size and much hooked; the nostrils are small, narrow, and oblique; the long and pointed wings, when closed, extend beyond the tip of the tail. The tarsus is short, naked, and reticulated; the under surface of the toes is provided with prickly scales; the claws are much curved and slightly rounded beneath.

## 192. PANDION HALIAETUS HALIAETUS

### The Osprey

*Veralu-addi-pon*, Tamil

*Falco haliaëtus* Linn. Syst. Nat. 10th ed. i. p. 91. (1758) (Sweden); *Pandion haliaëtus*, Legge p. 122; Oates & Blan. Vol. III. p. 314.

*Description*.—Head and neck white, the middle and sometimes the sides of the crown and nape with broad, brown shaft-stripes and tips; a broad, brown band runs from each eye down the sides of the neck; upper parts pale, glossy brown; wing quills blackish brown; tail feathers brown, tipped with whitish and barred with paler brown, the bars becoming fainter in old birds; lower parts white, the feathers of the upper breast with dark shafts and brownish centres of varying width; the flanks also partially streaked with brown.

In young birds the brown feathers of the upper parts are edged with whitish, the tail is more distinctly barred, and the breast is quite white, or only faintly spotted with brown.

Bill black; cere dull greenish blue; iris yellow; legs and feet greenish or yellowish.

Females: Length 22; wing 20; tail 8.5; tarsus 2.25; bill from gape 1.6. Males are rather smaller; wing about 18.5.

*Distribution*.—A winter visitor, mainly to the north of the Island, where it is said to be fairly common on the lagoons. It has been recorded from Galle, Moratuwa, and the Ratnapura District. The sub-species described occurs over Europe, Asia and Africa, visiting India in winter, though probably a few birds remain south of the Himalayas in the breeding season.

*Habits*.—This species in Ceylon seldom goes inland, but haunts brackish lagoons, estuaries, or sometimes the open coast. When at rest it may be seen perched on dead trees, guide posts in channels, &c. It often soars at a considerable height, and may then be recognized by its long, pointed wings and quick, circling movements. It feeds wholly on fish, which it catches in its talons, dropping on its quarry often from a considerable height.



## Family GYPIDAE

*Vultures*

The true Vultures are confined to the warmer regions of the old world, but are unknown in the Malay Archipelago, Madagascar, and Australia. They are practically unrepresented in Ceylon, as only a chance straggler of a single species of Scavenger Vulture has been recorded. This gap in our Avifauna is curious, as one would have imagined that there was abundant opportunity for such birds—which are common in the Indian peninsula—to find a living in the Island. They feed on dead animals, or even excrement, and the absence of feathers from the head and neck, which is the distinguishing feature of the family, is a modification highly necessary for birds of such unclean habits. In other respects they closely resemble Eagles and Hawks.

The only species recorded from Ceylon is the smallest of the Family and belongs to the genus *Neophron*. The bill is long and slender, straight at the base, with a sharply-hooked tip; the cere is very long. The head and upper fore-neck are naked, and below the naked portion is a ruff of hackles. The crop also is naked. The wings are long and pointed; the tail wedge-shaped; the tarsus is fairly long and partly feathered.

## 193. NEOPHRON PERCNOPTERUS GINGINIANUS

## The Smaller White Scavenger Vulture

*Valluru*, Tamil.

*Vultur ginginianus* Lath. Ind. Orn. i. p. 7 (1790) (Gingee. S. India); *Neophron ginginianus*, Legge p. 2; Oates & Blan. Vol. III. p. 326.

*Description*.—Plumage in general whitish; the neck hackles often with a rusty stain; primaries mainly black, ashy white on the outer web near the base; secondaries dark brown with some ashy white on the outer web; tertiaries pale brown.

Young birds are blackish brown, with fulvous tips to the feathers, and gradually change to the adult plumage.

In adults the bill is horny yellow; cere and naked skin of head and neck yellow; iris dark brown; legs dirty yellow. In young birds the bill is dark, and the naked skin of the head and neck gray.

Length 24; wing 18.25; tail 9.5; tarsus 3; bill from gape 2.4.

*Distribution*.—A solitary specimen, probably a storm-driven straggler, was shot at Nuwara Eliya in March, 1874. The same sub-species is found over the greater part of India, south of the Himalayas, and westwards of Lower Bengal.

*Habits*.—In India this bird is a regular town scavenger, living largely on human excrement and other filth. It is, however, also found in open country, away from human habitations.

## Family FALCONIDÆ

## Sub-family FALCONINÆ

*Eagles, Hawks, Falcons, &c.*

In the classification here adopted the whole of the Eagles, Hawks, and Falcons found in Ceylon—some twenty eight species—fall within the single Sub-family *Falconinæ*, which includes birds ranging in size from the Eagles to the Sparrow-Hawks and Falconets. They are practically all carnivorous, and the greater number of them feed on living prey. Some of our smaller species are partly, or wholly insectivorous, while others, especially the Kites, feed on carrion.

Most of the Sub-family undergo several and often gradual changes of plumage between their nestling and fully adult phases; in consequence coloration is often a very unsafe guide for the differentiation of the various species. There are, however, noteworthy characteristics of the bill, lores, wings, and tarsi, which serve to divide our twenty-eight forms into small, fairly well-marked groups, without altering the sequence adopted, or greatly disturbing the natural affinities of the various species. I propose, therefore, for the sake of simplicity, in the first place to split the Sub-family into nine small groups, and then to treat each group separately.

In most groups the tarsus is naked behind, and only partially feathered in front; the upper mandible of the bill is sharply hooked, and its cutting edge between the hook and the cere has a wavy outline, or “festoön” the feathers of the lores—i.e. the space in front of the eye—are more bristles, or end in bristles. Exceptions to these general characteristics serve to mark out several of the groups, as will be noted below:—

*Group I.: Hawk Eagles.*—Legs feathered all round down to the toes. Six large, or fairly large species.

*Group II.: Serpent and Fish Eagles.*—Three large, stoutly-built species, well over 20 inches in length. Tarsus over 3 inches in length, and only partially feathered. Wings broad and rounded, long in the Fish Eagles, and short in the Serpent Eagle.

*Group III.: Kites and allied Species.*—Two fairly large and one small species. Tarsus short, only about half as long again as the measurement in a straight line from the gape to the tip of the bill. Toes short.

*Group IV.: Harriers.*—Four species: one fairly large, three of medium size. Form slender; wings long and pointed; tarsus long and slender, feathered in front only at the base, the naked portion covered in front with transverse shields and behind with polygonal scales.

*Group V.: Buzzards.*—One rare species of medium size. Wings long; tarsus long and fairly stout, feathered in front to halfway down or more,

the naked portion covered both in front and behind with transverse shields.

*Group VI.: Hawks.*—Three small species. Wings short and rounded; tarsus long.

*Group VII.: Honey Buzzards.*—One rarish species of fairly large size. Face, lores, and eyelids covered with small, overlapping, scale-like feathers. Wings long, tarsus short, toes very long and scaly.

*Group VIII.: Baza.*—Two rare, smallish species. Bill with two "teeth", or notches on the upper mandible opposite the end of the lower mandible. Head crested; wings moderate; first quill much shorter than fourth.\* Nostrils linear.

*Group IX.: Falcons.*—Five medium, or small species. Bill with one notch on the upper mandible. No crest; wings long, first quill not shorter than fourth. Nostrils round.

#### *Group I.—Hawk Eagles*

The Hawk Eagles differ from the true Eagles, which do not occur in the Island, by their slimmer build, longer tails, and more slender tarsi. They resemble them, however, and differ from all the remaining groups in having the tarsus clothed all round down to the toes with fine close set feathers. They are all birds of large, or fairly large size, armed with powerful bills and talons, and flying with a fine, bold sweep. The note is generally a loud, clear call. Among the villagers of the Puttalam District the Crested Eagle—*S. cirratus ceylanensis*—is put down as the author of the Devil Bird's cry, and a loud, resounding, eerie scream, which I have heard at night in the northern forest tract, seemed certainly more like the cry of an Eagle than of an Owl. The six species found in Ceylon are mostly rare. They are divided among four genera. The main generic and specific differences are shown in the following key:—

#### *Key to Group*

I.—Wings long; when folded the tip of the longest primary exceeds the tip of the longest secondary by more than the length of the tarsus.

A.—Claws much curved; hind claw longest.

(a) No crest; mid-toe without claw not much longer than bill.†

Genus *Hieraetus*.

(1) Larger: wing well over 18.

*H. fasciatus* (Bonelli's Eagle).

\* In young birds there is at times only one notch, but such birds may be distinguished from Falcons by the shortness of the first quill.

† I.e., the distance from the gape to the tip of the upper mandible, measured in a straight line not round the curve.

- (2) Smaller : wing under 17.

*H. pennatus* (Booted Eagle).

- (b) A wedge-shaped crest on the nape ; mid-toe without claw more than half an inch longer than the bill.

*Lophotriorchis kieneri* (Rufous-bellied Hawk-Eagle).

B.—Claws not much curved ; inner claw longer than hind claw.

*Ictinaetus malayensis perniger* (Indian Black Eagle).

- 11.—Wing short ; primaries exceed secondaries by less than the length of the tarsus ; a long, thin crest on the crown. Genus
- Spizaetus*
- .

- (1) Smaller ; wing up to 15 ; lower parts plain, or streaked, but not crossbarred.

*S. cirrhatus ceylonensis* (Ceylon Crested Hawk-Eagle).

- (2) Larger ; wing over 16 ; lower parts crossbarred,

*S. nipalensis kelaarti* (Legge's Hawk-Eagle).**194. HIERAETUS FASCIATUS****Bonelli's Eagle***Rājāliyā*, Sinhalese ; *rāsāli, kalaḡu*, Tamil*Aquila fasciata* Vieill. Mem. Soc. Linn. Paris. ii (2) p. 152 (1822) (Montpellier) ; *Nisaetus fasciatus*, Legge p. 36 ; *Hieraetus fasciatus*, Oates & Blan. Vol. III. p. 343.

*Description*.—Adult : Upper plumage deep brown, the feathers with white bases ; eyebrows and sides of neck streaked with white ; cheeks and ear coverts streaked with brown ; sides of face white ; upper tail coverts with pale margins ; wing quills black, the bases of the inner webs mottled with white ; tail feathers brownish gray above, almost white underneath, with a broad band of dark brown at the tip, and irregular, wavy bars of the same colour near the base ; lower parts white with black brown shaft-stripes of varying width ; thigh plumes and lower abdomen more or less pale brown with the same dark streaks ; under tail coverts with light brown crossbars ; wing-lining black brown marked along the edge with white.

In some old birds the ground colour of the lower parts is buff, and the thighs and abdomen are darker.

Young birds are lighter above, with pale edges to the feathers of the crown and nape ; lower parts brownish rufous with narrow, dark stripes ; the wing quills are more banded ; the tail is smoky brown, without the dark, broad, terminal band, but with numerous, narrow, wavy, dark bars.

Bill bluish gray, darkening to black at the tip ; cere and gape yellowish ; iris bright yellow, or brownish yellow ; feet yellowish, or whitish brown.

Male : length 27 ; wing 19 ; tail 11 ; tarsus 3.6 ; middle toe 2.4 ; bill from gape 2.15. Females are larger ; length 29 ; wing 20.

*Distribution*.—Only once recorded from Ceylon.\* It occurs throughout India, and ranges from S. Europe and N. Africa to China.

*Habits*.—A powerful species, which kills its own prey, and never touches carrion. It feeds largely on mammals and small birds, especially pigeons. It is a fine bird on the wing, and generally soars at some height. As it is resident throughout its range, it may possibly be found nesting in Ceylon. In the plains of India it breeds about Christmas time, making a large, stick nest, lined with green leaves and placed on a rocky ledge, or in a high tree. Two eggs are laid. The ground colour is dirty white, faintly blotched at the large end with brown. Measurement about 2.75 by 2.2.

#### 195. HIERAETUS PENNATUS

##### The Booted Eagle

*Rājāliya*, Sinhalese ; *rāsāli*, *kalagu*, Tamil.

*Falco pennatus* Gmel. S. N. i. (1). p. 272. (1788) (Spain); *Nisaetus pennatus*, Legge p. 40; *Hieraetus pennatus*, Oates & Blan. Vol. III. p. 344.

*Description*.—Adult : Forehead and lores whitish ; a narrow, black streak above the eye ; feathers of sides of head, crown, and hind-neck fawn colour with black shaft-streaks, which are broadest on the crown ; cheeks and ear coverts richer brown ; upper plumage brown, darkest on the upper back, rump, and large scapulars ; smaller scapulars, tertiaries, and wing coverts paler with dark shaft-stripes and broad, whitish brown edges ; wing quills almost black, the secondaries with pale ends ; upper tail coverts fawn colour ; tail feathers dark, grayish brown above, grayish white underneath, with paler tips and traces of darker bars ; the lower parts, including wing-lining, buff white with blackish shaft-stripes, which are most numerous on the chin, less so on the breast, and fade away on the abdomen ; a few, large, black spots on the wing-lining.

Some specimens are dark brown all over. In old birds there are faint, rusty barrings on the thigh coverts and vent.

In young birds the head and neck are rufous brown, or dark brown ; the upper plumage much as in adults, but with dark shaft-stripes ; tail coverts paler ; lower parts dark brown, or pale rufous, with dark shaft-stripes, except on the abdomen ; upper surface of tail as in adults, but under surface pale brown instead of whitish gray.

\* Vide Legge's Birds of Ceylon, p. 37. The locality and date are not known.

Bill pale blue at the base, blackish at the tip; iris pale brown; cere yellow; legs and feet yellow.

Male: length 20; wing 15; tail 8.5; tarsus 2.4; mid-toe without claw 1.60; bill from gape 1.4.

Females larger: length 22; wing 15.75.

*Distribution*.—An occasional visitor to the Island; specimens have been recorded from Colombo, Kandy and the Northern Province. It is found, mainly as a winter visitor, throughout India, and occasionally in Burma. It also occurs in Southern Europe, South-western and Central Asia, and the greater part of Africa.

*Habits*.—A bold and active little Eagle, which preys on squirrels, birds, &c., being very fond of poultry and pigeons. It may be found both in wooded country and about inhabited places. It generally breeds north of the Himalayas, but a nest has been found in Southern India. It is of the same description as the nest of the last species, and is placed in a tree. The two eggs are greenish white, and measure about 2.13 by 1.78.

### 196. *LOPHOTRIORCHIS KIENERI*

#### The Rufous-bellied Hawk-Eagle

*Rājāliyā*, Sinhalese; *rāsāli*, *kalagu*, Tamil.

*Astur kieneri* de Sparre, Mag. Zool. 1835. Aves. pl. 35. (Himalayas);

*Lophotriorchis kieneri*, Legge p. 42; Oates & Blan. Vol. III. p. 345.

*Description*.—Adult: Whole upper plumage and sides of head and neck glossy black; wing quills black, tinged with brown; tail feathers dark brown with indistinct, black bars; the under side of the wing and tail gray with dark ends and bars; chin, throat, and breast white; remainder of lower parts, including the wing-lining, chestnut red, streaked with bold, black shaft-stripes.

Young birds are dark brown above, some of the feathers with paler edges; tail barred; lower parts pure white; ear coverts rufous brown streaked with black.

Bill black; cere yellowish white; iris dark brown; feet pale yellow.

Male: length 21; wing 15; tail 8.25; tarsus 2.8; middle toe without claw 2.15; bill from gape 1.15.

Females larger; length about 24; wing 16. Both male and female appear to vary in size.

*Distribution*.—A rare bird, but apparently resident in the hills, and occasionally seen in the low-country, as I recently obtained a specimen in forest 16 miles south-east of Puttalam. It is found in India, Burma, Malaya and the Philippines, but is nowhere common.

*Habits*.—A fine bold bird with a graceful, buoyant flight. It may be met with perched on tall trees in the forest, or seen sailing over wooded hillsides, patna gorges, &c. It feeds on small mammals and birds. It breeds regularly on the hills of Travancore in Southern India. The nest, which is used year after year, is a huge structure of sticks. The work of repairing it is begun in October or November. As early as December, or as late as March, a single egg is laid on a lining of green leaves. The colour is white, roughly speckled and dotted with pale reddish, or yellowish brown, sometimes with some deeper markings of blood red, and faint, underlying blotches of gray. The texture is fairly smooth, but coarse-grained, and the inner lining of the shell is a fairly bright green. Average size about 2.29 by 1.83.

### 197. *ICTINAETUS MALAYENSIS PERNIGER*

#### The Indian Black Eagle

*Kalu-rājāliyā*, Sinhalese ; *karuppu-rāsāli*, Tamil.

*Aquila perniger* Hodg. J. A. S. B. v. p. 277. (1836) (Nepal) ; *Neopus malayensis*, Legge p. 47 ; *Ictinaëtus malayensis*, Oates & Blan. Vol. III. p. 347.

*Description*.—Adult : Brown black almost all over ; lores whitish ; lower parts with a browner tinge ; the tail feathers and the inner webs of the wing quills near the base are barred with mottled gray, which on the underside of the feathers appears whitish.

Young birds are browner, the head is almost tawny, especially on the sides. Some specimens have tawny spots on the tips of the feathers of the crown, hind-neck, and sides of neck ; also similar pale drops, or broad shaft-stripes on the lower plumage. The change to the adult plumage is gradual.

Bill greenish horny, the tip black ; cere and gape citron yellow ; iris dark brown ; legs gamboge yellow.

Males : length 27 ; wing 21.5 ; tail 13 ; mid-toe without claw 1.60 ; bill from gape 2.

Females : length 31 ; wing 24 ; tail 14.

*Distribution*.—Found on the hills and in low-country forest tracts. This sub-species occurs on the Western Himalayas and Western Ghats, on the hills south of Assam, more rarely in Burma, also in the Malay Peninsula.

*Habits*.—A graceful, long-winged bird, usually seen sailing over forests with a flight rather like that of a Harrier. It is known to kill such large game as jungle fowl, but also feeds on lizards, grasshoppers, &c. Unlike most birds of prey, it does not require an open space in which to swoop on its quarry, but will seize it even in forest. It is, as

a rule, a silent bird, but occasionally utters a shrill cry when soaring. The nest may be used for many years in succession, and is the usual large structure of sticks, lined with green leaves and placed in a large tree.\* Repairs start in October or November, and about Christmas time one, or occasionally two eggs are laid. They vary a good deal in size, shape, and the character of their markings, but most specimens are extremely handsome. The ground colour is white, or creamy, with large, irregular blotches and specks of rich brown. In some specimens these markings are not so distinct, and the egg is more or less clouded with secondary markings of neutral tint, or grayish purple. Average size 2.45 by 1.95.

### 198. *SPIZAETUS CIRRHATUS CEYLANENSIS*

#### The Ceylon Hawk-Eagle

*Rājāliyā*, Sinhalese; *rāsāli*, *kalagu*, Tamil.

*Falco ceylanensis* Gmel. Syst. Nat. i. p. 275 (1788) (Ceylon); *Spizaetus ceylanensis*, Legge p. 55; *S. cirrhatus*, Oates & Blan. Vol. III. p. 349.

*Description*.—Adult: The whole head, except the chin and throat, the sides of the neck, and the hind-neck tawny brown, with dark centres to the feathers; a long, dark crest with conspicuous, white tips; back, scapulars, and wing coverts dark brown with pale edges; rump and tail coverts smoky brown with darker shafts; wing quills smoky brown above and whitish underneath, barred and tipped with black, the inner webs white towards the base; the tail feathers are of the same smoky brown above and white beneath, with broad, black crossbars and narrow, white tips; the chin, throat, and under surface are white; there is a narrow, black streak down the centre of the throat; the feathers of the breast and abdomen are splashed with bold, brownish black, drop-shaped marks, which increase in size downwards, the flanks, vent, and under tail coverts being almost wholly brown; the thighs and upper tarsus are rather more rufous, the lower tarsus is white; the edge of the wing and the wing-lining are white with long, drop-shaped marks of dark brown.

Some mature birds appear to be much lighter and have no dark chin stripe. There are fewer dark drops on the breast, while the abdomen, thighs, and under tail coverts are white with patches of pale rufous brown.

In young birds of the darker type the head and neck are lightish brown; the feathers of the upper plumage have white edges, most conspicuous on the wing coverts; the dark bars on the wings and tail are

\* The statement in Blandford and in Harmer's "Nests and Eggs" that this species builds in the lodges of hills appears to be erroneous (*vide* "Ibis," January, 1918, p. 51).



more numerous than in adults; the lower parts are white, or pale buff, with fewer dark drops; the abdomen and thighs are lighter.

Young birds of the pale type have the upper plumage much mixed with white; the head and neck are inconspicuously streaked with tawny buff, against which the dark crest shows boldly. The lower parts are of unspotted white, shading into rufous on the abdomen; the thighs and under tail coverts are barred with pale rufous.

Bill dark leaden, black at the tip; cere yellow in young birds, leaden in adults; iris pale straw to golden yellow; feet yellow.

Dimensions are rather variable; males, as a rule, are smaller than females, and dark birds than light forms.

Length about 23.5; wing 14.5; tail 9.75; tarsus 3.6; mid-toe without claw 2; bill from gape 1.65.

*Distribution*.—Fairly common nearly all over the low-country, and in the hills up to about 4,000 feet. It is replaced in the higher ranges by the next species. In India the same sub-species occurs in Travancore. Allied sub-species are found in Central and N. India and the Andamans.

It is possible that the smaller, darker birds are a local resident race, and the larger, paler birds migrants from India.

*Habits*.—A woodland species, usually met with on the edge of heavy jungle, in park country, or in chenas and scrub jungle through which larger trees are scattered. It rarely soars for any prolonged period, but is usually seen perched on the top of a high tree. It feeds mainly on lizards, but also kills small mammals and birds, and on occasions is very destructive to poultry. It breeds early in the year on tall trees, constructing a large nest of twigs lined with green leaves. The single egg is of dull greenish white, either unspotted or faintly streaked at the larger end with reddish brown. Measurement about 2.67 by 2.03.

#### 196. SPIZAETUS NIPALENSIS KELAARTI

Legge's Hawk-Eagle (Pl. XII. Fig. 1.)

*Rājāliyā*, Sinhalese; *rāsālī*, *kalaḡu*, Tamil.

*Spizaetus kelaarti* Legge, Ibis, 1878. p. 202 (Ceylon); Birds of Ceylon p. 51; Oates & Blan. Vol. III. p. 354.

*Description*.—Adult: Feathers of the head and hind-neck black with pale edges, which are broadest on the hind-neck; the long crest black, tipped with white; upper parts blackish brown; the scapulars and upper tail coverts tipped with white; wing coverts pale brown, darker at the ends; wing quills brown above, pale gray below, with dark cross-bars; tail feathers smoky brown above and gray below with dark cross-bars and narrow, white tips; chin, throat, and fore-neck creamy white, with a broad, dark stripe down the centre and a less clearly defined stripe

down each side; rest of lower parts, including the legs and tail coverts, pale brown with broad, white crossbars; the bars on the thighs are narrower; tarsus pale brown with white tips to the feathers.

Young birds are paler. The head and neck feathers are tawny white with drop-shaped marks of rufous brown; there is a good deal of white on the wing coverts; the sides of the head and neck, the throat, and fore-neck are almost unmarked, creamy white; the breast and abdomen are very pale brown with white crossbars.

Bill black, paler at the base; cere blackish; iris yellow; feet lemon yellow.

Females: length about 31; wing 18; tail 12.5; tarsus 4.5; mid-toe without claw 2.8; bill from gape 2.

Males are rather smaller.

*Distribution*.—This Eagle is now considered as a sub-species of *S. nipalensis*. It is confined to the higher ranges of Ceylon and Southern India. In Ceylon it appears to reside at elevations of over 4,000 feet, though it may be met with at lower altitudes in search of food.

*Habits*.—Rather a shy bird. It may be seen soaring slowly in wide circles above the higher ranges. It remains on the wing longer than the preceding species. It is fond of poultry, and most of the specimens obtained have been shot while raiding hen runs. The nest has frequently been found in the hills of Travancore. It is a huge structure of twigs, lined with green leaves and placed in a tall tree. Unless the birds are driven away it is used year after year. A single egg is laid generally in December. If the first egg is taken, a second may be laid later on. The shape is a broad oval, the small end well defined, but not pointed. The colour is white, at times with a few scattered markings of faint yellow, or red. The texture is coarse, rough, and glossless. Average size 2.75 by 2.14.

#### Group II.—Serpent and Fish Eagles

For the sake of convenience I have included the Serpent and Fish Eagles in one group, though they are not very closely akin, the main points of resemblance being their large size, powerful build, and longish tarsi. The Serpent Eagle—genus *Spilornis*—has a very distinctive plumage, adults being brown above and below, with white, rounded spots on the lower parts. The wing is short, but broad and rounded; the bill is fairly long and stout, with only a trace of a festoon; the lores are nearly naked; the nape is covered with a thick, bushy crest; the tarsus is only moderately stout, is naked, except for a short distance in front, and is covered with small, polygonal scales; the toes and claws are short, the latter are not very much curved. The two Fishing Eagles

rival in size the largest of our Hawk-Eagles. The plumage is a combination of white and gray, or brown. The wing is long, broad, and rounded; the bill is stout with a well-marked festoon; the tarsi and feet are very stout and powerful, the former are feathered in front for about one-third of the length. In the genus *Cuncuma* the outer toe is not reversible, but it is partially reversible in the genus *Polioaëtus*.

#### Key to Group

A.—A thick, bushy crest; tarsus almost naked, and only moderately stout; plumage brown, the lower parts with white rounded spots.

*Spilornis cheela spilogaster* (Ceylon Crested Serpent-Eagle).

B.—No crest; tarsus very stout and powerful, feathered in front for about one-third of its length.

(1) Claws grooved beneath.

*Cuncuma leucogaster* (White-bellied Sea-Eagle).

(2) Claws rounded beneath.

*Polioaëtus ichthyætus* (Large Gray-headed Fishing-Eagle).

### 200. SPILORNIS CHEELA SPILOGASTER

#### The Ceylon Crested Serpent-Eagle

*Rājāliyā, ukussā*, Sinhalese; *pirāndu, kudumpiyen*, Tamil, *Haematornis spilogaster* Blyth. J. A. S. B. XXI. p. 351. (1852) (Ceylon); *Spilornis spilogaster*, Legge p. 61; *S. cheela*, Oates & Blan. Vol. III. p. 357.

*Description*.—Adult: The feathers of the forehead, crown, crest, and hind-neck jet black with a very narrow tip of brown and a white base; the lores naked, except for a few black bristles; the cheeks and ear coverts grayish black; upper parts dark brown with a purplish gloss; smaller wing coverts blackish with a few, small, white spots at the tip; wing quills blackish with some white patches at the base of the inner webs and with three broad bars, which are smoky brown above and whitish below; basal half of tail smoky brown, outer half blackish with a broad band of whitish brown and a pale tip; lower parts earthy brown, lighter in some birds than in others; chin and throat rather grayer; the whole under surface from the breast down marked with roundish, white spots, which are edged with darker brown; on the vent, thighs, and lower tail coverts these spots change to bars.

In young birds the crown and nape are white with black brown ends and pale edges; the feathers of the upper parts are lighter at the

base and have pale tips; the wing coverts are a good deal mixed with white; the pale bands on the wing quills and tail are more numerous; the breast bears traces of fulvous crossbars; the edge of the wing-lining is white.

Bill lead colour, darker at the tip; cere and naked skin of face lemon yellow; iris yellow; legs and feet dingy yellow.

Males: length about 23; wing 15; tail 9.5; tarsus 3.25; mid-toe without claw 1.8; bill from gape 1.7

Females are a little larger: length 24; wing 15.5.

*Distribution*.—Fairly common all over the Island, but most abundant in the drier, low-country, forest tracts. The species occurs all over the Indian Empire, and ranges south-east to Malaya, including the Archipelago, and eastwards to Japan. It is divided into a number of sub-species, the form found in Ceylon being sub-specifically distinct.

*Habits*.—A forest bird, generally found on large trees by the banks of rivers and streams, and round village tanks. From such trees the birds watch for their prey, which consists mainly of snakes, lizards, and frogs. They may also be seen soaring, often at a considerable height, and may then be recognized by their loud, whistling cry and by the numerous, light bars on the wings and tail. The birds appear to breed from about March to May. The nest is a loose structure of twigs, scantily lined with green leaves, and placed in a tall tree. The eggs number one or two, and are dirty white with rusty red stains and blotches. They measure about 2.50 by 1.95.

## 201. CUNCUMA LEUCOGASTER

### The White-bellied Sea-Eagle

*Muhudu-rājāliyā*, Sinhalese; *kadal-alā*, Tamil.

*Falco leucogaster* Gmel. S. N. i. p. 257. (1788) (N. S. Wales); *Haliaeetus leucogaster*, Legge p. 67; Oates & Blan. Vol. III. p. 368.

*Description*.—Adult: The whole head, neck, and lower parts are white, the neck and breast generally marked with narrow, dark shaft-lines; the back and wings are dark ash colour tinged with brown; wing quills and base of tail blackish; outer third of tail white.

In young birds the head, neck, and lower parts are pale tawny, or rufous, the breast is darker; the upper plumage is brown, many of the feathers with pale edges; the tail feathers are whitish with brown ends, which are narrowly tipped with white.

Bill dark leaden; cere paler; iris hazel brown; legs and feet whitish.

Male: length 27.50; wing 22; tail 10; tarsus 3.6; mid-toe without claw 2.3; bill from gape 2.25. Females are slightly larger,

*Distribution*.—Not uncommon round the coast, except from Chilaw to Galle, where it is local. It is also found on the large inland tanks. It occurs on the shores of the Indian Ocean, from Bombay to the Malay Archipelago, and ranges into Australasia.

*Habits*.—The birds live in pairs and reside year after year in the same place, hunting along the coast, lagoons, or tanks in the vicinity of their eyrie. Their food consists mainly of fish, sea-snakes, crabs, &c., but they will also on occasion seize wounded wild birds, or young chickens.

The nest is a huge structure of sticks in a large tree, and is used year after year. The breeding season is early in the year. Two eggs are generally laid, on a lining of green leaves. They are dull white with a green inner texture, and measure about 2.85 by 2.10.

## 202. POLIOAETUS ICHTHYAETUS

### The Large Gray-headed Fishing-Eagle

*Wéwa-rājāliyā, lūl-mārā*, Sinhalese; *alā*, Tamil.

*Falco ichthyaetus* Horsf. Trans. Linn. Soc. xiii. p. 136. (1821) (Java);

*Polioaetus ichthyaetus*, Legge p. 72; Oates & Blan. Vol. III. p. 370.

*Description*.—Forehead whitish; the head, upper part of hind-neck, and throat ashy gray; crown and nape brownish; back, wings, rump, upper tail coverts, and a broad band at the end of the tail dark brown; breast and flanks rather lighter brown than the back; abdomen and basal two-thirds of the tail pure white.

Young birds are lighter brown, the feathers with pale edges; head light brown with pale shaft-lines; fore-neck and breast with broad, white shaft-stripes; wing quills barred with smoky brown above and whitish underneath; the white upper surface of the tail much mottled.

Bill dark horny, bluish at the base; cere lead colour; iris clear yellow, at times mottled with brown, or tinged with red; legs and feet whitish.

Males: length 24.5; wing 17.25; tail 9.75; tarsus 3.5; mid-toe without claw 2.3; bill from gape 1.85.

Females rather larger: length 27; wing 18.

*Distribution*.—Found mainly in the northern half of the Island on coastal lagoons and estuaries, or inland on rivers and village tanks. It occurs in India eastwards of Delhi and throughout Burma to Malaya and the Philippines.

*Habits*.—A pair of these birds may usually be seen on jungle-girt, village tanks of any size in the northern and eastern forest tracts. It is also fairly common round well-wooded shores of lagoons and estuaries. It feeds largely on fish, for which it watches from a perch on a

tall tree near the water, swooping out now and then for short flights, but seldom soaring, or staying on the wing for any very long period. The cry is a deep resonant "kyaw" repeated several times. The birds are frequently noisy early in the morning long before it is light. The breeding season is about Christmas time. The nest is a huge platform of sticks in a large tree. Two eggs are laid, grayish white in colour, and measuring about 2.68 by 2.09.

### Group III—Kites

The Kites and their allies form a group distinguished by their long, pointed wings and distinctly short tarsi, which are feathered for about halfway down, or a little more. The bill is moderate with a distinct falcate, less prominent in the true Kites—*Milvus*—than in the other genera. The toes and claws are shortish.

There are three Ceylon species, two of medium and one of small size. Each is placed in a separate genus. *Haliastur*—the Brahminy Kite—forms a connecting link between the Sea Eagles and the true Kites.

### Key to Group

A.—Size medium; length 19 or over.

- (1) Adult plumage maroon and white; tail slightly rounded at the end.

*Haliastur indus indus* (Brahminy Kite).

- (2) Plumage streaky brown; tail forked.

*Milvus migrans govinda* (Pariah Kite).

B.—Size small; length about 12.50.

Adult plumage black, white, and gray.

*Elanus caeruleus caeruleus* (Black-winged Kite).

### 203. HALIASTUR INDUS INDUS

The Brahminy Kite (Pl. XII. Fig. 2.)

*Ukussā*, Sinhalese; *chem-pirāndu*, Tamil

*Falco indus* Bodd. Tabl. Enl. 1783. p. 25. (Pondicherry); *Haliastur indus*, Legge p. 76; Oates & Blan. Vol. III. p. 372.

*Description*.—Adult: Head, neck, flanks, and lower parts to the centre of abdomen white, with dark brown shaft-lines; rest of plumage chestnut maroon with the same dark shaft-lines, except on the tail; primaries black, except on the basal portion of the inner webs; the tip and the under surface of the tail whitish.

Young birds are very different; the upper plumage is earthy brown; the feathers of the head and hind-neck with pale tawny tips; the back

feathers and wing coverts with pale margins ; primaries black ; secondaries and tail dark brown ; throat and breast brown with tawny shaft-stripes ; abdomen and lower tail coverts with dark shaft-lines.

In the next stage the head, neck, and breast feathers are pale brown with a rufous tinge, and have dark shaft-lines ; wing coverts mixed with white ; lower abdomen dull rufous. From this the birds moult into the adult plumage.

Bill bluish horn colour ; cere yellowish ; iris brown ; legs and feet greenish yellow.

Male : length about 19 ; wing 14.75 ; tail 8.5 ; tarsus 2 ; middle-toe without claw 1.25 ; bill from gape 1.4.

Females are a trifle larger.

*Distribution*.—Found all round the coast, and abundant on the tanks in the northern and eastern forest tracts ; much more local in the south of the Island and the Western Province, and only a straggler in the hills. It occurs throughout the Indian Empire, except in the dry districts and forests, and ranges eastwards to China and south-east to the Malay Peninsula. Closely allied forms are met with in the Malay Archipelago and Australia.

*Habits*.—This, with us, is the commonest species of the group, and takes the place of the true Kites in acting as a general scavenger of garbage. It is, however, seldom met with far from water, and its food consists largely of fish, frogs, and crabs. On the coast it is generally seen near towns, large villages, and fishing stations. Inland it is a familiar sight round tanks and over paddy fields. It is continually on the wing, soaring and wheeling at a considerable height. The cry is a peculiar, rather dreary squeal. The breeding season begins about Christmas, with apparently a second brood about June. The nest is a structure of twigs, somewhat larger than a Crow's nest, and placed in much the same positions. The two or three eggs are grayish white, generally scantily speckled, or dotted with faded reddish brown. They measure about 1.95 by 1.62.

#### 204. MILVUS MIGRANS GOVINDA

##### The Common Pariah Kite

*Ukussā*, Sinhalese ; *para-pirāṇdu*, Tamil.

*Milvus govinda* Sykes. P. Z. S. 1832. p. 89. (Deccan) ; Legge p. 80 ; Oates & Blan. Vol. III. p. 374.

*Description*.—Adult : Head and neck slightly tawny brown with dark shaft-stripes ; a patch of unstreaked brown on the ear coverts ; back a more uniform, deeper, and slightly glossy brown ; the medium

wing coverts lighter, with dark shaft stripes; wing quills the same colour as the back, except the longer primaries, which with their coverts are blackish; the inner secondaries are paler, and bear traces of dark brown cross-bars; all the quills are mottled with whitish on the concealed parts of the inner webs; tail brown above, whitish brown below, with faint, dark bars; the lower parts are paler brown than the back; the chin whitish; abdomen and lower tail coverts generally tinged with rufous; the whole marked with dark shaft stripes.

Young birds are much streaked with pale buff on the head and lower parts, while the feathers of the back, secondaries, and tail are tipped with whitish.

Bill black; cere pale greenish; iris brown; legs and feet yellow, or greenish.

Males: length about 22.5; wing 17; tail 10.5; tarsus 2.1; middle toe without claw 1.5; bill from gape 1.6.

Females larger: length 23.5; wing 18.

*Distribution*.—Confined to the sea coast on the north, from near Mannar to Trincomalee. It is apparently a partial migrant, especially on the north-east coast. It abounds all over the Indian Empire. Allied sub-species have a wide range in S. Europe, Africa, Asia and Australia.

*Habits*.—It is strange that a bird so common all over India has such a restricted range in Ceylon. With us it feeds on garbage and the leavings of the nets when the fishermen haul in their catch. It breeds in the north of Ceylon in the early part of the year. The nest is a loose mass of twigs, mixed with old rags and grass, and placed in a tree. Two eggs, occasionally three or four, are laid. The colour is pale greenish white, generally spotted and blotched with brown, or reddish, but occasionally unmarked. Average size of eight Ceylon eggs 2.08 by 1.55.

## 205. ELANUS COERULEUS COERULEUS

### The Black-winged Kite

*Kurullā-goyā*, Sinhalese; *pirāndu*, Tamil.

*Falco coeruleus* Desfon. Hist. Acad. Roy. Paris. 1787-9. p. 503. (Algiers); *Elanus coeruleus*, Legge p. 85; Oates & Blan. Vol. III. p. 379.

*Description*.—Adult: Upper plumage ashy gray, paler on the head; fore-neck, a streak above the eye, the sides of the head, and all the lower parts white; at times the fore-neck and flanks are tinged with pearl gray; lores, eyebrow, median, and smaller wing coverts black; primary quills dark ash gray above and blackish below; the central pair of tail feathers ash gray, the rest white, tinged with gray on the outer webs,



In young birds the feathers of the upper parts are brownish ashy with pale edges; the quills and tail feathers are tipped with white; the throat, chest, and breast are tinged with buff.

Bill black; cere pale yellow; iris in adults deep ruby red, in young birds yellow; legs and feet rich yellow.

Length about 12.50; wing 10.5; tail 5.25; tarsus 1.3; mid-toe without claw 1; bill from gape 1.1.

*Distribution*.—Fairly widely distributed over the Island; probably a partial migrant, as in some districts it is commoner during the north-east monsoon. It is found throughout the greater part of India and Burma, ranges over the whole of Africa, and occurs locally in Southern Europe and South-western Asia.

*Habits*.—This handsome little species avoids heavy forest, and is partial to grassy lands, patanas, young plantations, and low chenas, provided they are thinly dotted over with large trees. It is a solitary bird, and nowhere abundant. It is most noticeable during the north-east monsoon, but undoubtedly breeds in the Island. On the wing it rather resembles a Gull in appearance. It seldom soars, or takes long flights, but frequently hovers like a kestrel. Its food consists of insects, mice, small lizards &c. In the hills the breeding season appears to be from December to March. In the low-country I once saw a bird in the Tangalla district beginning to build in July. The nest is like that of a Crow, and is placed generally high up in a solitary tree. The eggs number two or three, and are almost perfect ovals. The ground colour is dull white, more or less densely blotched with brownish red. Average size 1.55 by 1.20.

#### *Group IV.—Harriers.*

The Harriers belong to a single large genus, various members of which are found in most tropical and temperate climates. Four species, all of which are migratory, occur in Ceylon. They are easily recognised by their appearance and flight. The form is slender; the beak is small, curves regularly from the base, and has a very slight festoon. There is a ruff of small, soft feathers across the throat and up the sides of the neck to behind the ear coverts. The tail is long and even at the tip, or slightly rounded. The wings are long and pointed. The tarsus is long and slender, and is feathered in front only at the base. The naked portion is covered in front with transverse plates, and behind with smaller, polygonal scales. The toes are moderate, the claws slim, curved, and sharp.

In their habits all the species are very similar. They are generally seen flying over marshes, or open grassy lands with heavy flaps of the

wings, beating up and down for their prey, which consists largely of frogs, reptiles, insects, and small mammals. They are somewhat crepuscular, and generally perch and roost on, or near the ground. In many species the male and female have a very different plumage, and the best way to identify the various forms is by the "notch" or indentation in the outer web of the larger primaries. This "notching" is characteristic of the larger wing quills in most birds of prey. From the base to this wavy indentation the barbs of the quill are set at an angle of about 45° to the shaft. From the "notch" to the tip the barbs, though no shorter in length, are set at a much more acute angle, thus considerably reducing the width of the web.

### Key to Group

A.—Outer web of second, third, and fourth quills notched; fifth quill not notched.

(1) Tarsus over 2.5 in length; notch on second quill close to tip of greater coverts.  
*Circus macrourus* (Pale Harrier).

(2) Tarsus under 2.5; notch on second quill about an inch beyond tip of greater coverts.

*C. pygargus* (Montagu's Harrier).

B.—Outer web of second to fifth quills notched.

(1) Wing under 15 in length.

*C. melanoleucus* (Pied Harrier)

(2) Wing 16 or over.

*C. aeruginosus aeruginosus* (Marsh Harrier).

## 206. CIRCUS MACROURUS

### The Pale Harrier

*Ukussā*, Sinhalese; *pānai-pirāndu*, Tamil.

*Accipiter macrourus* S. G. Gmel. N. Comm. Acad. Petro. xv. p. 439. (1771) (Veronitz, Volga); *Circus macrurus*, Legge p. 17; Oates & Blan. Vol. III. p. 381.

*Description*.—Male: Upper surface pale bluish gray, except in very old birds, the nape and mantle are tinged with brown; lores and all round the eye white; ear coverts pale gray, streaked with white; primaries ash gray, second to sixth quills blackish brown towards the ends, the bases of all the quills white; upper tail coverts darker gray, barred with white; central tail feathers gray, outer feathers white with irregular

gray bars; lower parts white, with a gray tinge on throat, neck, and breast.

Female: Upper surface brown; feathers of head and hind-neck with pale rufous margins; forehead, eyebrow, and a patch below the eye buffy white; ear coverts and a broad moustache-stripe brown; a well marked ruff of white, or buff, with brown shaft-stripes runs right round the neck; smaller wing coverts with tawny edges; wing quills smoke brown above, whitish underneath, with ends and broad bars of black brown; upper tail coverts white, with brown shaft-stripes; central tail feathers smoke brown, outer feathers tawny, all with dark brown bands; lower parts white with rufous shaft-stripes which are broadest on the breast. In old birds these stripes become very narrow.

Young birds resemble females in their upper plumage, but the feathers have tawny margins, the ruff is pale tawny all round the neck and stands out very conspicuously. The upper tail coverts are white and the lower parts buff with faint shaft-stripes. The adult plumage is assumed gradually.

Bill blue black; cere greenish yellow; iris yellow in adults, brown in young; legs yellow.

Males: length 18; wing 13.5; tail 9.25; tarsus 2.7; mid-toe without claw 1.25; bill from gape 1.10.

Females rather larger; length 19.5; wing 14.5.

*Distribution*.—Fairly common throughout the Island during the north-east monsoon. A few stray and probably immature specimens remain with us all the year round, chiefly up-country. The species ranges over Eastern Europe, and practically the whole of Asia and Africa, breeding in the north and wintering in the south.

*Habits*.—All our Harriers have much the same habits, which are described in my remarks on the group. The present species frequents swamps, paddy fields, and stretches of grass land near water. At times large numbers of these birds and the next species congregate and roost in some favourite spot in a swamp. It does not appear to breed in the Island.

## 207. CIRCUS PYGARGUS

### Montagu's Harrier

*Ukussā*, Sinhalese; *pūnai-pirāndu*, Tamil.

*Falco pygargus* Linn. S. N. p. 89. (1758) (England); *C. cineraceus*, Legge p. 12; Oates & Blan. Vol. III. p. 383.

*Description*.—Male: Head, neck, breast, and upper plumage dark ash gray, with a bluish tinge; back, scapulars, and tertiaries, except, in old birds, tinged with brown; upper tail coverts white at the base,

ashy gray at the ends, and sometimes with bands of the same colour ; first six primaries almost black, with slight, gray tips, which increase in size on the inner primaries ; secondaries gray with two black cross bands ; middle tail feathers unbarred, frosted gray, remainder whitish with bars of dusky gray, which become rufous brown on the outermost feathers ; abdomen, under tail-coverts, and thighs whitish with rufous shaft-stripes ; wing-lining white with a few chestnut patches.

Females resemble those of the preceding species, only the ruff is not so distinct, the upper parts are darker, and the lower parts are dull rufous, or buff, with rufous brown shaft-stripes.

In young birds the ruff is streaked and is less distinct than the conspicuous, clear-coloured ruff of the young Pale Harrier. At all stages the present species may be distinguished by the characters noted in the key

Bill black ; cere greenish yellow ; iris yellow in the male, brownish yellow in the female ; legs and feet yellow.

Male : length 17 ; wing 14.75 ; tail 9 ; tarsus 2.25 ; mid-toe without claw 1.1 ; bill from gape 1.05.

Females larger : length 19 ; wing 15.25.

*Distribution*.—Appears in considerable numbers in the north of the Island during the north-east monsoon and spreads down the coast on both sides. It is not so common in the interior as the last species. In winter it is met with locally throughout India, but is very rare in Burma. It occurs over the greater part of Europe, Asia, and Africa.

*Habits*.—Much the same as those of other Harriers. It is largely crepuscular, and appears to be rather dazzled in broad daylight. It haunts swamps, marshes, and open country, and feeds mainly on frogs and lizards. It does not appear to breed south of the Himalayas.

## 208. *CIRCUS MELANOLEUCUS*

### The Pied Harrier

*Ukusaā*, Sinhalese ; *pūnai-pirāndu*, Tamil.

*Falco melanoleucus* Forst. Ind. Zool. p. 12 (1781) (Ceylon) ; *Circus melanoleucus*, Legge p. 9 ; Oates & Blan. Vol. III. p. 385.

*Description*.—Male: Head, neck, breast, and median wing coverts black, glossy above, but duller on the breast ; smaller wing coverts almost white ; the first six primaries and the tertiaries black, remainder of wing quills silver gray, the secondaries with tips and inside borders of white ; rump white ; upper tail coverts white, shaded with gray towards the ends ; tail feathers gray, the outer feathers paler, and with a considerable amount of white on the inner web ; lower parts from breast downwards clear white.

**Female :** Upper plumage dark brown ; the feathers of the crown and neck edged with rufous ; nape feathers with broad white borders and bases ; a distinct ruff of small, whitish feathers with dark brown shaft-stripes ; cheeks and ear coverts dirty white, streaked with brown ; the smaller wing coverts along the bend of the wing white with brown streaks ; greater wing coverts and secondaries with broad, brown bands ; primaries blackish brown ; upper tail coverts white with some rufous markings ; tail smoky gray with brown bands ; the lower parts from the ruff downwards white with brown stripes, which are very broad on the neck and breast, but narrower and tending to disappear on the abdomen.

Young birds are like females, but are more uniformly brown above and have no gray on the wings and tail, which are brown with darker bands, while the lower parts are rufous brown with slightly darker streaks.

Bill black, bluish at the gape ; cere greenish yellow ; iris bright yellow ; legs yellow.

Male : length 17.5 ; wing 14 ; tail 8.5 ; tarsus 3.1 ; mid-toe without claw 1.3 ; bill from gape 1.10.

Females are larger : length 18.5 ; wing 14.5.

**Distribution.**—A rare migrant during the north-east monsoon, recorded from a few localities on the coast, also from Ratnapura and the North-Western Province. It occurs in Burma and the eastern half of India during the winter, and ranges throughout Eastern Asia, breeding mainly in the north.

**Habits.**—Found quartering over grassy jungles as well as over paddy fields and swamps. It has been found breeding in Northern India, but is not likely to nest in Ceylon.

## 209. CIRCUS AERUGINOSUS AERUGINOSUS

*The Marsh Harrier* (Pl. XII. Fig. 3.)

*Ukussā*, Sinhalese ; *pūnai-pirāndu* Tamil.

*Falco aeruginosus* Linn. S. N. p. 91. (1758) (Sweden) ; *Circus aeruginosus*, Legge p. 5 ; Oates & Bian. Vol. III. p. 387.

**Description.**—Adult : Head and neck buff, or rufous, with dark brown shaft-stripes ; the back, with the smaller and median wing coverts, and at times the tertiaries, dark brown, some of the feathers tipped with rufous ; the lesser coverts along the bend of the wing are buff with dark shaft-stripes ; the first six primaries blackish, the remaining wing quills and the greater wing coverts silver gray ; the concealed basal portion of all wing quills white ; upper tail coverts white, mixed with gray and rufous brown ; tail pale gray ; the breast is buff with broad, brown shaft-stripes ; abdomen and lower tail coverts rather streaky rufous brown.

In immature birds the plumage is mainly dark brown ; the crown, nape, and chin buff with narrow, brown stripes; the tail coverts, wing coverts, back, and lower parts may have rufous tips to the feathers. In some cases the bird is dark brown all over. The adult plumage is gradually assumed.

Bill black ; cere greenish yellow ; iris yellow, brownish in young birds ; legs and feet yellow.

Length 21 ; wing 16 ; tail 9·5 ; tarsus about 3·4 ; mid-toe without claw 1·75 ; bill from gape 1·35. Females are generally slightly larger.

*Distribution*.—A migrant visiting the Island in fair numbers during the north-east monsoon ; more plentiful in some years than in others, and always rather locally distributed, mainly round the coastal swamps and lagoons. It occurs in winter in suitable localities throughout India and Burma, and its range extends over most of the Old World.

*Habits*.—It frequents marshes, paddy fields, and sometimes dry grass lands. It lives on frogs, fish, and insects, but, being a far more powerful species than our other Harriers, it can also tackle birds, and will occasionally carry off a wounded snipe or teal. A few birds breed in India, so a stray nest may, perhaps, be found in Ceylon. It is made of straw, or grass, placed among reeds, or on the ground. The four or five eggs are white, at times slightly spotted with bright reddish brown. Size about 2 by 1·50.

#### *Group V—Buzzards*

The Buzzards, structurally, are closely allied to the Eagles, differing from them mainly in their less powerful beaks and claws, and in their partially naked tarsi. Another distinctive characteristic is that, though the coloration varies enormously in different specimens, there is no distinct immature plumage.

Only one form occurs in Ceylon, and only as an exceedingly rare straggler. It is of about the same size and general colour as an immature Brahminy Kite, but may be distinguished by the longer tarsus, which is about twice as long as the measurement in a straight line from the gape to the tip of the bill, and feathered in front to halfway down, or more ; the naked portion both in front and behind is covered mainly by transverse plates. The bill is moderate, and curves from the cere, the festoon is but slight. The wings are ample, long, and pointed ; the tail is moderately long and rounded at the end ; the toes are short.

## 210. BUTEO BUTEO RUFIVENTER

## The Desert Buzzard

*Ukussā*, Sinhalese; *pirāndu*, Tamil.

*Buteo rufiventer* Jerd. Madr. Journ. L. S. xiii. p. 165. (1844) (Nilgiris); *B. plumipes*, Legge p. 31; *B. desertorum*, Oates & Blan. Vol. III. p. 393.

*Description*.—Colour variable, either dark, or pale brown, with more or less noticeable shaft-streaks; the feathers of the crown, nape, and hind-neck with white bases; sides of the neck whitish with dark brown streaks, including a dark moustache-stripe and a band running backwards from the eye; the primaries have black brown ends, a large portion of the inner web is white, the under surface of the quills is also white, except at the tip; secondaries brown above, with the inner webs partly white, or rufous, underneath whitish with dark gray ends and cross bands; tail brown, or rufous above, whitish below, with more or less distinct bars; lower parts white, or buff, the throat streaked with brown, the breast and abdomen also broadly streaked, or at times almost covered with brown.

Some birds are brown almost throughout.

Bill black, bluish gray at the base; cere yellow; iris brown; legs and feet yellow.

Females; length about 20; wing 15; tail 8.9; tarsus about 2.8, but rather variable; mid-toe without claw 1.5; bill from gape 1.40. Males smaller; wing about 14.

*Distribution*.—An extremely rare straggler to the Island, only recorded twice or thrice. This sub-species breeds from S. E. Russia to Persia and migrates S. E. in winter.

*Habits*.—Rather like those of a Harrier. It quarters over marshes and bare lands hunting for mice, frogs, lizards, and insects. It is rather sluggish and solitary, and during the heat of the day generally perches on a low tree, or bush, or on the ground.

## Group VI—Hawks

The three typical Hawks found in Ceylon are all of small size. They are to be met with mainly in forest, or in well wooded localities. As a group they are distinguished by their short, rounded wings and long tarsi. The bill is short and stout, and curves sharply from the cere; the festoon is well marked. The tarsus is feathered in front only at the base; the naked portion is covered in front and behind with transverse shields, and on the sides with reticulated scales. The tail is fairly long and square at the ends. The lower plumage is transversely barred in adults and spotted in the young. The females in all three species are much larger than the males.

*Key to Group*

A.—Tarsus fairly stout; toes moderate; bill from gape about three-fifths of mid-toe without claw.

(1) No crest; wing up to 7·5; central tail feathers in adults not completely barred.

*Astur badius badius* (Ceylon Shikra).

(2) A small crest; wing 7·5 or over; central tail feathers in adults fully barred.

*Astur trivirgatus trivirgatus* (Crested Goshawk).

B.—Tarsus slender; toes long; bill from gape half mid-toe without claw.

*Accipiter virgatus besra* (Besra Sparrow-Hawk).

**211. ASTUR BADIUS BADIUS**

**The Ceylon Shikra** (Pl. XIII. Fig. 3.)

*Kobēyi-ukussā*, Sinhalese; *valluru*, Tamil.

*Falco badius* Gmel. Syst. Nat. i. p. 280. (1788) (Ceylon); *Astur badius*, Legge p. 23; Oates & Blan. Vol. III. p. 398.

*Description*.—Adult male: Upper plumage bluish ashy; the hind-neck generally tinged with rufous; wing quills blackish towards the ends, the inner webs below the notch white, or buff, with blackish bars; in the tail the middle and outermost feathers are not barred, or have only traces of bars, the remainder have four or five dark bars; the sides of the head and neck and a narrow streak down the chin are ashy gray; chin and throat otherwise whitish; breast some shade of rufous with narrow, white bars, which vary considerably in regularity and distinctness; on the abdomen the colour gradually fades into the buff, or white of the vent, thighs, and tail coverts.

Females are darker and browner above, and more boldly barred on the under surface.

Young birds are brown above, with rufous edges to the feathers; all the tail feathers are barred, the bars on the outer feathers being narrower and more numerous; lower parts white with large, brown, drop-shaped markings, which are largest on the breast; there is generally a brown stripe down the centre of the throat.

Bill bluish, darker at the tip; cere greenish yellow; iris yellow, or orange, darkening to red in old birds; legs and feet yellow.

Females: length 13·50; wing 7·5; tail 6·5; tarsus 2; mid-toe without claw 1·25; bill from gape 1·75.

Males are smaller; length about 12; wing 6·75.



*Distribution*.—Found all over the Island in considerable numbers. The species occurs throughout India and Burma, extending westwards into Southern Persia and eastwards as far as China. Our Ceylon subspecies is confined to this Island and Travancore.

*Habits*.—May be seen almost anywhere, except in thick forest. According to Legge, it is a partial migrant, the majority of the birds seen near the sea during the north-east monsoon retiring inland to breed during the south-west. It feeds largely on lizards, but will also take small birds, rats, mice, grasshoppers, &c. The call is a two-syllabled whistle. The breeding season appears to last from April till about August. The nest is rather a loose structure of twigs, about a foot across, and lined with grass. It is generally placed near the top of a tree. The three eggs are plain bluish white; the texture is smooth, but glossless. Average size 1.55 by 1.22.

## 212. ASTUR TRIVIRGATUS TRIVIRGATUS

### The Crested Goshawk

*Ukussā*, Sinhalese; *valluru*, Tamil.

*Falco trivirgatus* Temm. Pl. Col. pl. 303. (1824) (Sumatra); *Astur trivirgatus*, Legge p. 20; *Lophospizias trivirgatus*, Oates & Blan. Vol. III. p. 404.

*Description*.—Adult: Forehead, crown, and short crest blackish, shading into ashy on the sides of the head and neck, the shafts of the feathers darker; upper parts from nape to tail coverts dark glossy-brown; upper tail coverts tipped with white; wing quills with blackish bars, much more distinct on the underside of the feathers than above; tail smoky brown with four broad, blackish bands; chin and throat white with a long, black stripe down the centre and one on each side of the border of the gray cheek; breast rufous brown with white margins, which vary in width; abdomen and thighs barred chocolate brown and white, the bars becoming narrower on the thighs; under tail coverts white; wing-lining whitish with brown patches.

Young birds are brown above with pale edges to the feathers and buff bases which show on the nape and hind-neck; under parts whitish, or at times rufous buff with dark, drop-shaped spots on the throat and neck, deep, rusty spots on the flanks, abdomen and lower tail coverts, and rusty brown bars on the thighs.

Bill bluish brown at the base, black at the tip; cere, eyelids, and gape of bill greenish yellow; iris golden-yellow; legs and feet pale yellow.

Females: length about 15.5; wing 8; tail 7; tarsus 2.25; mid-toe without claw 1.25; bill from gape 1.1.

Males are smaller; length about 14; wing 7.5.

*Distribution*.—Not very common, but fairly widely distributed in the forests of the low-country and up to about 3,500 feet in the hills. This sub-species is found in similar country throughout S. India, the Malay Peninsula, Java, &c., and is replaced further North by a larger, redder form.

*Habits*.—Entirely a forest bird, generally seen in tall trees. The cry is a shrill note of one syllable. It feeds chiefly on lizards, but also on small birds. The breeding season in Ceylon is probably during the south-west monsoon. The nest is rather like that of the preceding species, and is placed in a high tree. The two eggs are pale greenish white, and measure about 2 by 1.4.

### 213. ACCIPITER VIRGATUS BESRA

#### The Besra Sparrow-Hawk

*Ukussā*, Sinhalese; *sinna-valluru*, Tamil.

*Accipiter besra* Jerd. Madr. Jour. L. S. x. p. 84. (1830) (S. India); *A. virgatus*, Legge p. 26; Oates & Blan. Vol. III. p. 404.

*Description*.—Adult male: Head, hind-neck, back, and wings very dark ash colour, deepest on the head; the back often tinged with brown; the feathers on the nape and the scapulars white at the base; wing quills brownish gray above, whitish below, with broad, dark cross-bars (the fourth quill has seven or eight such bars, including the tip); secondaries and tertiaries barred on the inner web with white; tail dark ash gray above, whitish below, with four dark bands on the inner feathers and five or six on the outermost; the latter disappear in old birds; throat white, generally with a dark stripe down the middle; upper breast rufous, the central feathers with white edges and dark shafts; lower breast, abdomen, and thighs barred white and rufous brown, but the breast and flanks are so tinged with rufous as to conceal the bars; vent and lower tail coverts white.

Females are dark brown above; the crown and nape blackish; wings and tail browner than in males; throat and fore-neck white with a broad, dark, central stripe; the centre of the chest boldly striped with dark brown; sides of chest, breast, abdomen, and thigh coverts banded rufous brown and white, the white bands growing narrower in old birds.

Young birds are brown above with rufous margins to the feathers; the under parts are buff, or brownish white, with a broad, dark band down the centre of the throat, and large brown spots on the breast, abdomen, and thigh coverts. The spots turn to bars as the birds grow older.

Bill lead gray, blackish at the tip; cere pale lemon yellow; iris bright yellow, orange in old birds; legs and feet yellow.

Males : length about 10·5 ; wing 6·25 ; tail 5 ; tarsus 2 ; mid-toe without claw 1·25 ; bill from gape ·62.

Females considerably larger ; length about 13·5 ; wing 7·5 ; mid-toe 1·4 ; bill from gape ·7.

*Distribution*.—This sub-species occurs in S. India and Ceylon. A larger form, *A. virgatus affinis* is found further N. from the Himalayas to China. The Ceylon form is fairly widely distributed over the Island wherever there is jungle.

*Habits*.—Like the crested Goshawk this is a jungle bird and rather shy. The cry is a loud, shrill squeal. It feeds on small birds, lizards, &c. The breeding season appears to be about May ; the nest is a rough structure of twigs placed in a tree. The clutch varies from two to four, three being the usual number of eggs. The eggs are white, tinged with a faint bluish tinge when fresh, and more or less brightly marked with blotches of reddish brown. Average size 1·46 by 1·18.

[*Note*.—*Accipiter nisus nisosimilis*—The Asiatic Sparrow Hawk—may possibly occur in the Island. Kelaart in his *Prodromus* (p. 96) states that he saw a single live specimen. Legge (p. 29, footnote) shows that the authenticity of this record is doubtful. The species, however, is a winter migrant as far south as the Nilgiris, and may possibly turn up one day in the Ceylon hills.

It is a larger bird than the Besra Sparrow Hawk ; males measuring about 8 and females 9·5 in the wing. It may be recognized by the fourth primary quill, which in adults has only five or six dark bars, and by the lack of the dark throat-stripe, which is generally present in *Accipiter virgatus*.]

#### Group VII—Honey-Buzzards

The Honey-Buzzards differ from all other Birds of Prey by having the sides of the head, the lores, and even the eyelids covered with close, overlapping, scale-like feathers. As the birds feed largely on the combs and larvae of bees and wasps, the close feathering of the head is doubtless a protection against the stings of these insects. The bill is weak, rather long, not very hooked, and has little or no festoon. The wings are long and rather rounded. The tail is moderate in length. The tarsus is short and feathered halfway down in front. The toes are long, the middle toe being as long as the tarsus, and are covered with conspicuous, bony scales. Honey Buzzards are found throughout most parts of the Old World. One species occurs throughout the Indian Empire.

214. *PERNIS CRISTATUS RUFICOLLIS*

## The Indian Crested Honey-Buzzard

*Rājāliṃṃā*, Sinhalese; *then-pirāndu*, Tamil.*Pernis ruficollis* Less. Traité Orn. p. 76. (1831) (Bengal); *P. ptilonorhynchus*, Legge, p. 89; *P. cristatus*, Oates & Blan. Vol. III. p. 406.

*Description*.—Plumage extremely variable. A fairly typical specimen is coloured as follows:—Forehead and crown iron gray, deepening on the back of the head to light brown with dark shaft-stripes; the small crest is black; nape and sides of neck light brown with dark shaft-stripes; back and rump sepia brown; upper tail coverts lighter brown with some white bars; wing coverts brown, lighter at the tip; primaries gray brown with black tips and two black bars; secondaries grayer with light tips; innermost quills almost tawny brown; tail brownish black with a broad band of gray brown on the outer half and a similar, narrower band towards the base; lores, sides of head, ear coverts, eyelids, and chin gray; throat tawny brown with darker shaft-stripes; a faint, black streak down the centre of the throat and on each side; rest of lower parts, with the wing-lining, more or less mottled with white; under surface of wings and tail grayish white with black bars.

Some, probably quite old birds, are darker, and have the throat and whole under surface chocolate brown.

Young birds are much lighter. The feathers of the crown and nape, and sometimes of the whole head and neck are pale tawny with dark shaft-stripes and white bases; the rest of the upper parts are brown with pale edges to the feathers; the wing coverts and upper tail coverts are a good deal mixed with white; wing quills and tail brown, narrowly tipped with white and irregularly barred and mottled with lighter, grayish brown; the lower parts are white, or buff, more or less marked with long, dark shaft-stripes, which are sometimes drop-shaped.

Mature birds may be told by the tail. In the adult stage the broad, pale cross band, though it may be mottled, is never barred as in younger birds.

Bill black, whitish blue at the gape; cere hard and horny, and of a deep lead colour; iris golden, or brownish yellow; legs and feet yellow.

Females: length about 26; wing 16.5; tail 10.5; tarsus 2; mid-toe without claw 2; bill from gape 1.65.

Males: length about 25; wing 16.

*Distribution*.—Found during the north-east monsoon, mainly in the northern half of the Island. Some birds appear to be resident. It occurs throughout the Indian Empire and South-eastern Asia.

*Habits*.—Generally seen near water and in well-wooded country, but on its first arrival it may be met with near the coast. The flight is

straight and rather hurried, but seldom long-sustained. It feeds largely on the combs of bees, eating both honey and brood-comb. It will also eat white ants, various insects, and small reptiles. Some birds may breed in the northern forest tract, probably during the south-west monsoon. Indian nests are the usual structure of twigs placed in a tree. One or two eggs are laid. They are white, or buff, mottled and blotched with blood red, or reddish, and measure about 2.03 by 1.72.

#### Group VIII—Bazas

The Bazas differ from all the preceding groups, in having the upper mandible of the bill furnished with two saw-like teeth on each side, just opposite the end of the lower mandible. In young birds there is often but one tooth, as in the Falcons, but whereas in the present genus the nostril is an oblique slit, in the Falcons it is a circular opening. There is a long crest on the crown. The wings are only moderate in length, and the first primary is much shorter than the fourth. The tail is fairly long and square at the ends. The tarsus is short and feathered halfway down in front; the toes are fairly long.

Bazas are forest birds, of smallish, or medium size, found in Africa, Madagascar, the Oriental region, and part of Australia. Two rare species occur in Ceylon.

#### Key to Group

A.—Plumage mainly black; length about 13.

*Lophastur leuphotes leuphotes* (Black crested Baza).

B.—Plumage mainly brown; length about 17.

*Aviceda jerdoni ceylonensis* (Legge's Baza).

### 215. LOPHASTUR LEUPHOTES LEUPHOTES

#### The Black-crested Baza

*Kurullu-goyā*, Sinhalese.

*Falco leuphotes* Dumont. Dict. Sci. Nat. xvii. p. 217, (1820) (Pondicherry); *Baza lophotes*, Legge p. 98; Oates & Blan. Vol. III. p. 409.

*Description*.—Adult: General colour of upper plumage, wings, and tail black with a slight, grayish bloom; the bases of all body feathers white; the longer scapulars white with broad margins of black, washed with ferruginous red; the exposed portions of the longer wing coverts and the last few wing quills largely white, irregularly pied with black and ferruginous red; the outer webs of the inner primaries and some secondaries washed with reddish chestnut; wing-lining black, the greater under coverts and the under surface of wing quills and tail ashy white, darkening

to blackish towards the tips of the wing quills, and with blackish patches towards the end of the tail feathers; chin and throat black; a broad, white gorget on the lower fore-neck; below this is an indefinite black band, tinged with chestnut; breast and long flank plumes whitish buff, banded with chestnut; abdomen, thighs, and lower tail coverts grayish black, the abdomen fringed with pale reddish white, and the tail coverts with whitish.

Young birds have the ferruginous and white markings on the scapulars and quills more developed, the black of the plumage is duller, and the red banding on the flank is fainter, or wanting.

Bill, in a fresh specimen, pale grayish blue, black at the tip; cere, legs, and feet pale grayish blue; iris purple brown.

Males; length 13; wing 9.25; tail 5.25; tarsus 1.1; mid-toe without claw 1.1; bill from gape 1.

Females slightly larger; wing 9.9.

*Distribution*.—A rare bird, which appears to have its head-quarters at the base of the Himalayas, from Nepal eastwards. Another subspecies ranges through Burma to Cochin-China and the Malay Peninsula. In Ceylon the bird is a rare migrant during the north-east monsoon. Specimens have been recorded from various widely-scattered localities in the low country.

*Habits*.—This species may be found in fairly wild jungle, or forest, generally at no great elevation. It occasionally goes about in little troops, and is said to feed mainly on insects. The cry is sharp and Kite-like.

## 216. *AVICEDA JERDONI CEYLONENSIS*

Legge's Baza (Pl. XIII. Fig. 1.)

*Kurullu-goyā*, Sinhalese.

*Baza ceylonensis* Legge, Stray. Feath. iv. p. 247. (1876) (Kandy); ditto Birds of Ceylon p. 94; Oates & Blan. Vol. III. p. 409.

*Description*.—Adult: Feathers of crown and nape dark brown, deepening to black on the shafts and towards the end, and with pale margins; the long crest blackish with white tips; the feathers from the hind-neck to the rump earthy brown with narrow pale tips; greater secondary coverts and tertiaries rather paler and with more white; primaries, secondaries, and tail smoky brown above, grayish white below with darker brown bars; the inner primaries, the secondaries, and outer tail feathers with narrow, white tips; the lores and a stripe behind the eye blackish brown; cheeks and ear coverts gray with dark shaft-stripes; chin and throat buff, also with dark shafts; the sides of the neck and of

the breast more tawny ; rest of lower surface white with broad crossbars of pale rust colour, which are less conspicuous on the under tail coverts.

Young birds are paler ; the dark bars on the tail are five in number, as against four in adults ; the lower surface is whiter, and the rusty cross bands are paler and less perfect.

Bill blackish lead colour ; cere brownish black ; iris orange yellow ; legs and feet yellowish.

Length about 17 ; wing 12 ; tail 8 ; tarsus 1.5 ; mid-toe without claw 1.5 ; bill from gape 1.25.

*Distribution*.—An extremely rare resident in the hills. It has also been obtained in India in the Wynaad and Travancore. This bird is only a sub-species of *B. jerdoni* of which the typical form occurs in Sikkim, Tenasserim, the Malay Peninsula, and Sumatra.

*Habits*.—Little is known of its habits. It occurs on wooded hill slopes and in the jungles scattered over the patanas. The nidification is as yet unknown, but probably its nesting habits resemble those of *L. leuphotes*, which makes a nest like that of a small Kite in a high tree, and lays three chalky white eggs.

#### Group IX—Falcons

The Falcons and their allies are a world-wide group noted for their speed and courage. Many of the species have long been trained by Falconers. The typical Falcons prey on birds, swooping down on their quarry while in flight, and killing it with a powerful, ripping stroke of the hind claw. Kestrels, however, hover over the ground hunting for small mammals, upon which they drop quietly from above. The members of the group vary from medium to small size. They are all neatly built with long, pointed wings. The second quill may be the longest, as in the Peregrines and Hobby, or the second and third quills may be almost equal, thus giving the wing a slightly more rounded appearance, as in the Kestrel. The bill is stout, shortish, and well hooked, with one conspicuous tooth on each side of the upper mandible, and with more or less of a festoon further back. The nostril is circular with a central tubercle. The tarsus is fairly short, with the upper half plumed in front ; the toes are long ; the claws curved and sharp. The tail is of moderate length, and is slightly rounded in all our forms, except the Kestrel, in which it is more fan-shaped, the outer tail feathers being markedly shorter than the central pair. The Indian members of the group were divided by Blanford into four genera. Stuart Baker, however, reunites them all into one genus.

## Key to Group

A.—Second primary longest; first primary much longer than fourth.

(a) Sexes similar; legs yellow.

(1) Length 16 to 19; crown dark gray; breast only slightly rufous.

*Falco peregrinus calidus* (Siberian Peregrine Falcon).

(2) Length 15 to 18; crown blackish; breast generally dark rufous.

*F. peregrinator peregrinus* (Shahin Falcon).

(3) Length 10.5 to 11.5.

*F. severus indicus* (Indian Hobby).

(b) Sexes dissimilar; legs deep orange-red; length about 12.

*F. vespertinus amurensis* (Eastern Red-legged Falcon).

B.—Second and third primaries longest; first primary about equal to fourth. Tail graduated, outer feathers distinctly shorter than inner pair.

*F. tinnunculus tinnunculus* (Kestrel).

217. *FALCO PEREGRINUS CALIDUS*

The Siberian Peregrine Falcon (Pl. XIII. Fig. 3.)

*Kurullu-goyā*, Sinhalese; *valluru*, Tamil.

*Falco calidus* Lath. Ind. Orn. i. p. 41 (1790) (India); *F. peregrinus*, Legge p. 101; Oates & Blan. Vol. III. p. 413.

*Description*.—Adult: Above, blue grey with dark shaft-stripes and bars, the rump and upper tail coverts paler; hind-neck, upper part of mantle, and wing coverts largely dusky; forehead whitish; there is a black moustache band, which expands into a patch on the cheeks and ear coverts; primary quills brown black, the inner webs barred with white, or pale rufous, except near the tip; secondaries ash gray with indistinct, darker crossbars; tail dusky gray, with many ash gray cross-bars and a whitish tip; lower parts white tinged with rufous; lower breast and centre of abdomen with a few brown, or black spots and bars; flanks, wing-lining, thigh coverts, and under tail coverts with more regular, narrow, black bars.

Young: Above, dark brown with rufous edges to the feathers; the white bases of the feathers are exposed on the nape; the tail feathers have pale rufous, oval spots; the black cheek-stripe is narrower than in



adults; lower parts white tinged with buff, or rufous and with long, fairly wide, dark brown shaft-stripes; wings as in adults. The slaty gray back of the adult is gradually attained, while the dark markings on the breast slowly become smaller, and in old birds practically disappear, save for a few specks on the abdomen and three-cornered marks on the thighs.

Bill bluish, black at the tip; cere and orbital skin yellow; iris brown; legs and feet yellow.

Females: length about 19; wing 14.5; tail 7.5; tarsus 2.2; mid-toe without claw 2.25; bill from gape 1.35.

Males are smaller: length about 16; wing 12.5.

*Distribution*.—A rare migrant during the north-east monsoon, keeping mainly to the coast, but specimens have been met with inland as far as the bases of the main, central hill ranges. The species is found all over the world, breeding in the north and visiting the tropics in winter. The race found in Ceylon breeds in N. and Central Asia.

*Habits*.—This species in Ceylon generally frequents cliffs and marshes near the sea, preying largely on Wild-fowl and Waders. From its bold nature, its swift flight, and powerful stroke it has long been a favourite with Falconers, who train it to fly at Herons, Storks, Cranes, &c. Though usually breeding in the far north, there seems no doubt (*vide Legge, p. 103*) that Layard shot a pair breeding in the Jaffna peninsula. The nest was a rough structure of twigs in the top of a palmyra. In temperate regions the nest is usually placed on a cliff ledge. The three or four eggs are reddish white, freckled with brick red, or reddish brown, and measure about 2.2 by 1.65.

## 218. FALCO PEREGRINUS PEREGRINATOR

### The Shahn, or Indian Peregrine Falcon

*Kurullu-goyā*, Sinhalese; *valluru*, Tamil.

*Falco peregrinator* Sund. Phys. Sall. Tid. i. p. 177. (1837) (Indian Ocean); Legge p. 106; Oates & Blan. Vol. III. p. 415.

*Description*.—Darker than the last species; at all ages the head, nape, and hind-neck are almost charcoal black, and the lower surface from the chest to the tail coverts is a deep, ferruginous brown.

In young birds almost the whole upper plumage is black with rufous edges, which soon wear off; the nape is tinged with rufous and the tail marked with oval spots, as in the young of the last species; the chin and throat are pale and unspotted; the breast and abdomen marked with long, dark drops. In old birds these markings on the breast and abdomen almost entirely disappear.

Bill slate blue, dark at the tip; cere and orbital skin yellow; iris deep brown; legs yellow.

Females: length about 17·5; wing 12·75; tail 6·25; tarsus 2; mid-toe without claw 2; bill from gape 1·25.

Males: length about 15; wing 11·5. Ceylon birds are smaller than those from Northern India.

*Distribution*.—A resident sub-species closely allied to the true Peregrine, which is migrant. Exceedingly rare in Ceylon, where it is found occasionally in the mountain zone, and round isolated hills, or sea cliffs in the low-country. It occurs in rocky hills in, or near forest throughout India and Burma, and perhaps in Afghanistan, but it is nowhere common.

*Habits*.—A shy bird, which frequents inaccessible ledges of rocky cliffs. It hunts chiefly in the early morning and evening, and feeds exclusively on birds, chiefly Pigeons, Paroquets, Swallows, and Swifts. In its swoop it is as swift and bold as the larger Peregrine, and for this reason is a great favourite with Indian Falconers. It has been found breeding at Sigiriya in June. The nest is a mass of sticks placed on the ledge of a cliff. The three eggs are brownish yellow, pinkish, or brick-red, speckled and blotched with reddish brown. The ground colour may vary greatly in a single clutch. They are broad oval in shape, and measure about 2·05 by 1·65.

## 219. *FALCO SEVERUS INDICUS*

### The Indian Hobby

Vernacular names not recorded.

*Falco severus indicus* Meyer and Wiggs. Birds of Celebes, i. p. 84. (1897) (Calcutta); *Falco severus*, Legge p. 110; Oates & Blan. Vol. III. p. 423.

*Description*.—Adult: Cheeks, sides of head, crown, and hind-neck black, shading into dark slate gray with black shafts on the remainder of the upper parts; wing quills and larger coverts black, the inner webs of the quills deep brown with some rufous bars, or spots; tail slate gray with a darker bar near the tip; chin, throat, and sides of neck white, washed with rufous; rest of lower parts deep rusty red.

Young birds: Upper plumage brownish black with light rufous edges to the feathers; the inner webs of the tail feathers, except the central pair, banded with rufous; breast, abdomen, wing-lining, and tail coverts with long, drop-shaped, black markings.

Bill lead colour, cere and orbital skin pale lemon yellow; iris deep brown; legs yellow.

Females: length 11·5; wing 9·75; tail 4·5; tarsus 1·35; mid-toe without claw 1·35; bill from gape 2.

Males: length 10·5; wing 8·5.

*Distribution*.—A very rare straggler, recorded from two or three up-country localities during the north-east monsoon. It occurs on the lower Himalayas eastwards of Kulu, and occasionally during winter in the Indian Peninsula. Further East it is replaced by the typical subspecies *F. severus severus*.

*Habits*.—A mountain species frequenting wooded hills. It is crepuscular in its habits, and appears to feed on dragon flies, small birds, and lizards.

## 220. FALCO VESPERTINUS AMURENSIS

### The Eastern Red-footed Falcon

Vernacular names not recorded.

*Falco vespertinus* var *amurensis* Badde, Reis. Ost. Sib. ii. p. 110. (1863, (Amur region, Siberia); *Cerchneis amurensis*, Legge p. 119; *Erythropus amurensis*, Oates & Blan. Vol. III. p. 424.

*Description*.—Adult male: Upper parts and tail dark slaty gray; head, nape, back, and scapulars blackish; quills washed externally with silvery gray; cheeks sooty black; ear coverts paler; lower surface ashy gray; lower abdomen and under tail coverts deep ferruginous red; wing-lining white.

Adult female: Upper parts slate gray; head, neck, and upper back brownish; rump and tail paler; feathers of head and neck with dark shafts; rest of upper surface barred with black; the cheek-stripe, the feathers below the eye, and a band running back from the eye black; primaries blackish, the inner webs with many large, oval, white patches, except near the tips; lower parts creamy white, or pale rufous, the breast with long, black spots, passing into arrowhead marks on the flanks and upper abdomen; lower abdomen and lower tail coverts unspotted; wing-lining white with brown spots.

Young: Brownish, the feathers with indistinct, pale tips; lower scapulars, inner secondaries, rump, and upper tail coverts grayish with pale tips and bars of dull black; tail gray with black bars; sides of face and throat white; nape mixed with white; lores and an indistinct moustache-stripe brown; under parts white; the breast with blackish central streaks to the feathers; thighs and under tail coverts buffy white, the former tinged with rufous.

Bill fleshy red with a dusky tip; cere deep orange; iris hazel; legs orange red.

Length 11.5; wing 9; tail 5; tarsus 1.1; mid-toe without claw 1; bill from gape .75. Females a little larger.

*Distribution*.—Immature stragglers have once or twice been procured in Ceylon. This sub-species is a migrant breeding in Northern

China. and wintering chiefly in East Africa, but occasionally in India and Burma.

*Habits*.—An insectivorous Falcon, which hawks over grass lands mainly at dusk. A specimen shot by Legge at Trincomalee was busy feeding on grasshoppers. In its usual haunts it is rather gregarious.

## 221. *FALCO TINNUNCULUS TINNUNCULUS*

### The Kestrel

*Ukussā, kurullu-goyā*, Sinhalese; *valluru*, Tamil.

*Falco tinnunculus* Linn. S. N. p. 90 (1758) (Sweden); *Cerchneis tinnunculus*, Legge p. 114; *Tinnunculus alaudarius*, Oates & Blan. Vol. III. p. 428.

*Description*.—Adult male: The head, the back and sides of the neck, and a moustache-stripe bluish ashy with dark shafts; back, scapulars, and wing coverts brick red, tinged with vinous, and scattered over with triangular black spots; rump and upper tail coverts ashy gray; tail ashy gray above, whitish beneath, with a broad, black band near the end and a narrow, white tip; wing quills dark brown barred with whitish on the inner webs; cheeks and ear coverts whitish with darker streaks; lower parts pale, or buff with brown streaks on the breast, which pass into spots on the lower breast and flanks; lower abdomen and tail coverts unspotted; wing-lining white with some large black spots.

Female: Ground colour of upper plumage more brownish rufous, with black streaks on the head and hind-neck, and with conspicuous, black bands on the remainder of the upper parts and tail; the black band at the end of the tail is narrower than in the male; wings and lower parts as in the male, but the latter are more heavily streaked and spotted. In old females the rump, upper tail coverts, and tail are more or less tinged with blue gray.

Young males resemble females; the tail turns blue gray earlier than the head.

Bill bluish black; cere and eyelids yellow; iris brown; legs orange yellow; claws black.

Length about 14; wing 9.75; tail 6.75; tarsus 1.5; mid-toe without claw 1.10; bill from gape .85. Females, as a rule, are slightly larger.

*Distribution*.—Found all over the Island during the north-east monsoon. The Kestrel occurs over the whole of Europe and Asia, breeding mainly in temperate climates and migrating southwards in winter, when it spreads over Northern Africa as well.

*Habits*.—Mainly frequents open plains, cultivated tracts, dry paddy fields, &c., flying over the ground with rapid beats of its wings.

Every now and then it hovers and then drops suddenly on its prey, which consists largely of insects, lizards, frogs, and mice.

[*Note*.—The above description applies to the migrant form. There are reports however that some Kestrels are resident and breed in the hills. If these reports are authenticated the resident birds will most probably be referable to another sub-species; *viz.*

**Falco tinnunculus interstinctus**—The Indian Kestrel—which breeds on the hill ranges of the Indian Peninsula and Burma, and is distinguished by its rather smaller size and darker plumage. The breeding season in India of this race is from April to June. The nest is generally placed on ledges, or in the crevices of cliffs, occasionally in trees. The eggs usually number four or five. They are broad ovals, generally rather pointed at one end. The colour is brick, or blood red, with deeper mottlings and blotches. Average size about 1.57 by 1.21.

Two other species of the Falcon family may possibly occur in the Island. The first of these is **Falco chiquera chiquera**—The Red-headed Merlin—which occurs practically all over India. Layard states (*vide* Legge p. 112) that he watched a specimen through his telescope for some time at Point Pedro, but failed to secure it. It is found chiefly in gardens, or groves and feeds mainly on small birds. As in the Kestrel the first primary is about the same length as the fourth, but it is a smaller bird, the male being under 12 inches in length, while the tail is only slightly rounded, not fan-shaped. The following is a fuller description of the species, which may be looked for in the North of the Island.

Crown, nape, sides of neck, ear coverts, and a narrow cheek-stripe chestnut; lores and a narrow forehead whitish; a few bristly feathers round the eye black; upper parts from the neck ash gray; scapulars, secondaries, and wing coverts more or less barred with brown; primaries blackish brown, closely barred on the inner webs, except at the tip, with white; tail gray, with narrow, black bars, a broad, black band near the end, and a narrow, white tip; lower parts white, with a few short, blackish streaks on the breast, and black bars on the flanks and abdomen.

In old birds the dark bars on both the upper and lower plumage become narrow and tend to disappear. In young birds the gray feathers of the upper parts are barred with black, the crown and nape are dusky rufous with dark shaft-stripes, and the lower parts have a rusty tinge.

Bill bluish black, greenish yellow at the base; cere, eyelids, and legs yellow; iris lightish brown.

Male: length 11.25; wing 8.25; tail 6; tarsus 1.5; mid-toe without claw 1.3; bill from gape .80.

Females are rather larger: length 14; wing 9.

It is also possible that a Falconet—probably *Microhierax fringillaris* (The Black-legged Falconet)—may be found in Ceylon. These birds belong to a group which has a toothed bill like the Falcons. They are, however, extremely small, with a wing measurement of under 5 inches. They also differ from other Birds of Prey in their nidification, as they lay white eggs in a hole in the branch, or trunk of a tree.

The species mentioned above has a total length of 6·5 ; wing 4 ; tail 2·25 ; tarsus ·75 ; bill from gape ·55.

In general appearance it is black, glossed with metallic green on the upper parts ; the flanks and thigh coverts are black ; the lower parts white, more or less tinged with rusty red ; the forehead and a broad stripe from behind the eye down the sides of the neck are white.

This species is found in the Malay Peninsula, Southern Tennasserim, Sumatra, Java, and Borneo. Its presence in Ceylon was suspected by E. E. Green (*vide Spolia Zeylanica*, Vol. VIII., p. 287). He once saw a tiny Hawk pounce on a Bulbul and fly away with it. On another occasion a planter described to him how he had seen in Hewaheta two " Black-birds " fighting, and how one of them killed the other and flew away with it.]

## Order XI. COLUMBAE

### Family COLUMBIDAE

#### *Pigeons*

The Pigeons and Doves form a distinct Order, their nearest allies being the Sand-Grouse and the Game-birds ; hut they differ from these two Orders, in that the young when hatched are helpless and naked. In this respect they resemble the Passerine birds. Again, in certain details of their anatomy they show affinities with the Owls and Vultures.

In the bill of a Pigeon the basal portion of the upper mandible is covered with a soft skin, or cere; the tip is swollen, hard, and convex, forming a sort of knob. The nostrils are narrow slits placed near the base of the bill. The wings are generally long and pointed, with eleven primary and four secondary quills. The hind toe is placed on the same level as the front toes, and is well developed ; in those forms which are wholly arboreal the soles of the foot are flat and expanded, in the species which feed on the ground they are more slender. The birds are vegetarian, living mainly on fruit, or seeds. In most cases the nest is the scantiest platform of twigs placed in a tree, or bush, but some species nest on rocks. The eggs are white, or cream coloured, oval, and usually glossy ; they are generally two in number, but some Pigeons lay only one.

Classification within the order is a subject of some difficulty and divergence of opinion. The British Museum Catalogue recognizes five Families, three of which contain genera found in India. Blanford, however—followed by Stuart Baker in his recent work on the Indian Pigeons and Doves—includes all the Indian representatives in one Family *Columbidae*, which he divides again into six Sub-families, stating at the same time that the differences between several of these Sub-families are hardly more than generic, and that he has adopted these divisions more from deference to the usual practice than from conviction.

In Ceylon thirteen species of Pigeon have been recorded, belonging to four of the six Indian Sub-families. Of these thirteen, however, five are the merest stragglers, three more are local, and only five are common and widely distributed throughout the Island. Two forms are peculiar to Ceylon.

The following are the external characteristics by which our four Sub-families may be distinguished :—

(1) *Treroninae*

Fourteen feathers in the tail ; plumage mainly green, with conspicuous, yellow bands on the wings ; wing measurement not exceeding 8 inches ; in all Ceylon species the inner web of the third quill is notched.

(2) *Duculinae*

Fourteen feathers in tail ; size large ; wing 8 inches, or over ; soles of feet flat and expanded ; in Ceylon species the head, neck, and lower parts are gray.

(3) *Phabinae*

Twelve feathers in tail ; size small ; wing under 6 inches ; back and wing coverts metallic green ; bill red.

(4) *Columbinae*

Twelve feathers in tail ; size variable ; large forms, in which the wing is 8 inches, or over, have a glossy upper plumage, or a metallic lustre on the neck feathers ; in smaller forms the plumage is dull-coloured and lustreless.

### Sub-family TRERONINAE

#### *Green Pigeons*

The Green Pigeons may be distinguished at once by their plumage which is mainly a soft, yellowish green, and by their call, which is a low, melodious whistle, not a coo. They associate in flocks, and live almost entirely in trees, seldom descending to the ground. The soles of their feet are well adapted for perching, being flat, and considerably broader than the upper sides of the toes ; the tarsus is short, and has the upper portion feathered. They feed entirely on the fruit of various trees and shrubs, and are themselves very good for the pot. Three species are found in Ceylon : one, a very rare straggler, belongs to the genus *Crocopus*, in which the sexes are almost alike ; the other two, our common Green Pigeons, are both members of the genus *Treron*, in which the males differ distinctly from the females in their coloration.

#### *Key to Ceylon Treroninae*

A.—Legs and feet yellow ; wing 7.25.

*Crocopus phoenicopterus chlorogaster* (Southern Green Pigeon)



B.—Legs and feet red ; wing 5·6 : genus *Treron*.

- (a) Middle tail feathers green ; males with a maroon mantle.

*T. pompadora pompadora* (Pompadour Green Pigeon).

- (b) Middle tail feathers slate gray ; males with a breast of lilac and orange.

*T. bisincta bisincta* (Lesser Orange-breasted Green Pigeon).

## 222. CROCOPUS PHOENICOPTERUS CHLOROGASTER

### The Southern Green Pigeon

*Batagoyā*, *sipaduwā*, Sinhalese ; *pachchai-purā*, Tamil.

*Vinago chlorogaster* Blyth, J.A.S.B. xii. pt. i. p. 167 (1843) (Indian Pen.);

*Crocopus chlorogaster*, Legge p. 722; Oates & Blan. Vol. IV. p. 6.

*Description*.—Male : the forehead, top, and sides of head bluish gray, often encroaching on the yellowish green of the chin and throat ; under parts yellowish green, brightest on the upper breast ; vent and thighs yellow ; flanks grayer ; under tail coverts dull purplish chestnut with broad, white edges and tips of grayish white ; round the hind-neck is a broad collar of olive yellow, and behind this a narrower collar of bluish gray ; the rest of the upper parts, together with the wing and tail coverts, are olive green with a yellow tinge ; greater wing coverts and secondary quills edged with yellow ; primaries dark brown, also more or less edged with yellow ; small coverts at the bend of the wing lilac ; tail gray above, the feathers being tinged with green at the base ; underneath the tail feathers are gray with a broad, black base.

Females, as a rule, are slightly duller, while the lilac patch on the wing is smaller and not so pronounced.

Bill greenish, or bluish white ; iris with an inner circle of blue and an outer ring of carmine ; legs and feet chrome yellow.

Length up to 12·50 ; wing 7·25 ; tail about 4·5 ; tarsus ·9 ; bill from gape ·9.

Females are a little smaller. Ceylon and South Indian birds are smaller than those from Northern India.

*Distribution*.—In Ceylon a very rare visitor from Southern India. A few specimens have been obtained near Jaffna and at Arippe. This sub-species is found in Southern, Western and North-Western India.

*Habits*.—According to Layard, this Pigeon appears in Ceylon only when the fruit is ripe in the jungles. He says it is especially fond of the figs of the banyan. Like most Green Pigeons it always perches in trees, but occasionally descends to the water to drink

## 223. TRERON POMPADORA POMPADORA

The *Pompadour Green Pigeon* (PL. XIV. Fig. 2.)

*Batagoyā*, *sipaduwā*, Sinhalese; *pachai-purā*, Tamil.

*Columba pompadora* Gmel. S.N. i. p. 775 (1789), (Ceylon); *Osmotreron pompadora*, Legge p. 728; Oates & Blan. Vol. IV, p. 9.

*Description*.—Male: forehead, lores, and cheeks greenish yellow, becoming purer yellow on the chin and throat; crown and nape ashy blue, changing into ashy green on the hind-neck and sides of neck; mantle chestnut maroon; lower back, rump, and upper tail coverts green; central tail feathers green, the outer feathers passing into black with bluish gray tips; outer wing coverts and quills black, the secondaries and greater coverts boldly edged with bright yellow; under parts yellowish green; the flanks more ash coloured; lower flanks and thighs dark greenish with yellowish white tips; under tail coverts pale buff, or whitish.

Female: the maroon mantle is wanting, being replaced by dark green; as a rule, the yellow edges of the wing feathers are paler, and the lower tail coverts are more marked, especially at their bases, with green and ash colour.

Bird glaucous green, the tip bluish; iris carmine, with an inner ring of cobalt blue; legs and feet red with a purple tinge.

Length 10·5; wing 5·6; tail 3·6; tarsus ·8; bill from gape ·9.

*Distribution*.—Peculiar to Ceylon. Allied sub-species occur throughout India and Burma. It is abundant all over the low-country, and ranges up to about 4,000 feet. Near the sea, except in the north-east, it is largely replaced by the next species.

*Habits*.—The present species is common in forest country, largely in the vicinity of jungle-girt villages. In the more cultivated districts it may be found in plantations of jak, or other fruit trees, but these birds are generally not such fine specimens as those from the thick jungles of Sabaragamuwa, or the North-Central Province. They live entirely upon fruit, and at the season when the banyan and other wild figs are ripe their flesh is delicious. The breeding season is from about February to May, or, if the weather is favourable, right on to August. The nest is a scanty mesh of twigs placed in the small branches of a tree, usually about 10 to 20 feet from the ground. Sometimes two, often only one egg is laid. They are broad, blunt ovals, white and smooth in texture. The average size is about 1·12 by ·90.

## 224. TRERON BISINCTA BISINCTA

## The Lesser Orange-breasted Green Pigeon

*Batagoyā*, *sipaduwā*, Sinhalese ; *pachchai-purā*, Tamil.

*Vinago bisincta* Jerd. Madr. J. L. S. XII. p. 13 (1840) (Madras) ; *Osmotreron bisincta*, Legge p. 725 ; Oates & Blan. Vol. IV, p. II.

*Description*.—Male: the forehead, crown, face, and throat yellowish green, passing into delicate blue gray on the nape and hind-neck; back, wing coverts, and tertiaries green, shading into bronze green on the rump and upper tail coverts; tail ashy gray, with a dark, broad cross-band, which is most marked on the outer, and indistinct on the central feathers; wing quills black; the primaries and secondaries narrowly edged with bright yellow, the outer coverts and tertiaries with deep borders of the same colour; upper breast and sides of breast lilac, the lower breast orange; abdomen yellowish green, shading into pure yellow round the vent; thigh plumes yellow with broad centres of ashy green; under tail coverts cinnamon.

Females have no lilac and orange on the breast, which is yellowish green; the under tail coverts are paler, the outer webs being almost white.

Bill glaucous green, pale blue on the tip; iris cobalt blue, with an outer ring of carmine; legs pinkish red.

Length 10·5; wing 5·6; tail 3·7; tarsus ·75; bill from gape ·8.

Females are slightly smaller.

*Distribution*.—Common all round the coast, except in the palm belts, where it keeps a little further inland; it is also found over a good part of the low-country in the interior.

This sub-species occurs over a considerable portion of S. India, being replaced further N. and in Burma by a larger race.

*Habits*.—The present species, though often found in the same locality as the Pompadour Green Pigeon, is rather fonder of lower jungle, or even scrub. In the chena districts in the Southern Province it has taken kindly to the fruit of the *lantana*; it also feeds on wild dates and the berries of various shrubs, as well as on wild figs and other forest fruits. Like all Green Pigeons these birds will swarm on the boughs of a favourite fruit tree, and their plumage so harmonizes with the foliage that unless they move it is almost impossible to see them. The call is a low, soft whistle, like that of the last species, but generally preceded by a funny little chuckle.

The breeding season is from February till May, and sometimes again from July till September. I have found a fair number of nests, always by the side of a path, or clearing and placed from 6 to 10 feet up

in a low tree, or tall shrub. Two white eggs of the usual type are laid on a very scanty structure of twigs. During the day incubation is carried on by the male, which sits so close that one can almost touch it.

The average size of the eggs is about 1.10 by .88.

### Sub-family DUCULINAE

#### *Imperial Pigeons*

The Imperial Pigeons are large, fruit eating species with arboreal habits resembling those of Green Pigeons. In their structure they are more akin to the Rock Pigeon. The toes are stout, the sole broad and flat. Two species have occurred in Ceylon: one is fairly common; the other owes its place in the list to a single and recent record.

#### *Key to Ceylon Duculinae*

A.—Mantle olive brown with little or no gloss.

*Ducula badia cuprea* (Jerdon's Imperial Pigeon).

B.—Mantle green with a metallic gloss.

*Muscadivores aenea pusilla* (Ceylon Green Imperial Pigeon).

### 225. DUCULA BADIA CUPREA

#### *Jerdon's Imperial Pigeon*

Vernacular names not recorded.

*Columba cuprea* Jerd. Madr. J.L.S. xii. p. 12. (1840) (Malabar); not in Legge; *Ducula cuprea*, Oates & Blan. Vol. IV. p. 22.

*Description*.—Upper part of head, neck, and shoulders pale lilac gray, remainder of upper plumage, including wings, dark olive brown, with little or no gloss; rump and upper tail coverts almost the same colour as the back; basal portion of tail dark chocolate brown, outer third lighter brown; chin and throat white; remainder of lower parts grayish lilac; abdomen and hinder flanks tinged with ochreous; under tail coverts buff with dusky freckles.

Bill dull lake red at the base, slaty at the tip; iris reddish brown; legs dull lake red.

Length 17; wing 8.75; tail 7; tarsus 1.1; bill from gape 1.4.

*Distribution*.—In recent years a breeding bird and an egg have been obtained in the Ratnapura District.\* In India this sub-species occurs on the Nilgiris and other hill ranges near the Malabar Coast.

\* Vide Stuart Baker "Indian Pigeons and Doves" p. 107.

*Habits*.—This Pigeon has only recently been discovered in Ceylon, but as the nest and egg were taken, it would appear to be a very rare resident in the jungles of the Adam's Peak range. In the South Indian hills it keeps to heavy forest, but at certain seasons it migrates in large numbers to the coast to feed on the buds of various plants which grow in salt-water swamps.

The breeding season in Southern India is from January to April and again in November. The egg obtained in Ceylon was taken in October. The nidification resembles that of the next species; average size of egg 1.75 by 1.29.

## 226. MUSCADIOVORES AENEA PUSILLA

### The Ceylon Green Imperial Pigeon

*Mā-ñila-goyā*, Sinhalese; *maruttan-purā*, Tamil.

*Carpophaga pusilla* Blyth, J.A.S.B. xviii. p. 816. (1849) (Ceylon); *Carpophaga aenea*, Legge p. 718; Oates & Blan. Vol IV. p. 19.

*Description*.—The head, neck, and lower parts to the vent pale dove gray, sometimes tinged wholly, or in part, with vinous; the short feathers adjoining the bill are generally white; back, rump, upper tail coverts, and wings bronze green with a metallic lustre; tail deep slaty green above with less lustre than the back, underneath yellowish gray; wing quills blackish, tinged on the outer webs with gray, and changing gradually on the secondaries into the same colour as the back feathers; lower tail coverts liver coloured.

Bill grayish green, bluish at the tip, and dull red by the nostrils; iris deep red; legs and feet dull lake-red.

Length 16; wing 8.25; tail 5.5; tarsus 1; bill from gape 1.3.

*Distribution*.—Fairly common throughout the low-country wherever there is high forest. In India it occurs in heavy forest on the Malabar Coast, and is replaced by allied sub-species on the east coast through Bengal and Assam to Burma and the south-eastern portion of the Oriental region.

*Habits*.—A forest-loving species, commonest in the wilder districts. In the jungles of the northern and south-eastern parts of the Island, where the rainfall is not very heavy, it may be found in the strips of tall timber which fringe the streams and tanks. The birds are generally very shy, but like the Green Pigeons they are greedy fruit eaters, and when the berries are ripe on a favourite tree they will flock to it in the morning and early evening. At such times they can be approached with more chance of success. Old birds are apt to be tough, but young ones are tender and good to eat. The call is a fine, deep, dissyllabic coo. The

nest is the usual scanty saucer of twigs placed at a height of about 20 feet, or more, on a tree in the heart of the jungle. The nesting season appears to be in April and May. A single, smooth, white egg is laid, measuring about 1.65 by 1.30.

### Sub-family PHABINAE

#### *Bronze-wing Pigeons*

This Sub-family contains a considerable number of genera and species from Africa, Asia, the Malay Archipelago, and Australia, but only one species is found within Indian limits. The feathers of the mantle have a metallic lustre; the wing is moderately long, the tail short and slightly rounded; the tarsus is slender and not feathered, the toes are slender and adapted to the terrestrial habits of the bird.

### 227. CHALCOPHAPS INDICA

#### *The Bronze-wing Pigeon*

*Nil-kobējiyā*, Sinhalese; *pāthekai-purā*, Tamil.

*Columba indica* Linn. S. N. ed. x. p. 164 (1758). (in India Orientali); *Chalcophaps indica*, Legge p. 714; Oates & Blan. Vol. IV. p. 26.

*Description*.—Male: forehead and eyebrow white, changing to slate gray on the crown and nape; sides of the head, neck all round, and upper breast deep vinous red, which pales gradually on the lower breast and abdomen, the gray of the nape may be continued more or less indistinctly down the hind neck; back and wing coverts golden green with a varying amount of bronze sheen; primaries, secondaries, and greater primary coverts dark brown, the outer webs of the secondaries glossed with green, the small wing coverts at the shoulder of the wing vinous red, fringed with white; lower back coppery brown with two blue gray cross-bands; rump and upper tail coverts blackish brown; tail blackish brown, the outer feathers gray, with a black cross-bar towards the tip.

In females the white patch on the forehead and eyebrow is smaller, and at times almost absent; there is no slate gray on the crown and nape, and the white patch on the shoulder of the wing is lacking; the upper tail coverts are chocolate brown with dark tips; the middle four tail feathers are reddish brown, the next pair redder with darker tips, and the outermost pair, as in the male, gray with a black cross-bar.

Bill red; iris dark brown; legs and feet red.

Length 10.5; wing 5.6; tail 3.75; tarsus 1; bill from gape .9.

*Distribution*.—Found almost all over the Island, wherever there are forests. In India it occurs in most forest districts with sufficient rainfall. Common throughout Burma, and extends through South-eastern Asia to New Guinea and the Philippines.

*Habits*.—Essentially a bird of the forest; it feeds largely on the ground, and may often be seen on roads and paths through the jungle, picking up any grain which has been spilled at wayside halts. In the low-country it is also very fond of the little, open spaces made in the jungle by the outcrops of bare slab rock, coming to drink from the water-holes in the crevices. The call is a soft, deep "hoo." The flight is low and swift. There are probably several broods during the year, and the nest may be looked for at any time from February to June. It is a more compact structure than that of most Pigeons, placed in a tall bush, or low tree from 5 to 10 feet above the ground. The two eggs are not white, but buff, or cream coloured, and their average size is about 1.05 by .83.

#### Sub-family COLUMBINAE

##### *Rock Pigeons, Wood Pigeons, and Doves*

This Sub-family includes the typical Pigeons and Doves, of which seven species are found in Ceylon. These seven species are distributed amongst four genera, which vary considerably in size and colour of plumage—superficial distinctions without any correspondingly important structural differences. In the Rock Pigeons—genus *Columba*—the plumage is mainly gray with some metallic lustre about the neck; the wings are fairly long and pointed, the tail is short, the tarsus is not feathered and the feet are formed for walking, with slender toes and narrow soles. The Indian Wood Pigeons—genus *Alsocomus*—have a dark plumage, the greater part of it lusted with a changeable, metallic sheen. In habits they approach the Imperial Pigeons, being arboreal and fruit eaters. The Turtle Doves—genus *Streptopelia*—are smallish birds, clad in rather sober brown, or gray, with small heads, slender necks, and weak bills. The wing is long and pointed, the legs short and the foot formed for walking. The sexes are similar. The genus *Oenopopelia* contains one small Dove, which has been placed apart owing to the difference in plumage between the sexes and the comparatively longer wing.

*Key to Ceylon Columbinae*

A.—Size large; wing 7·5 inches, or over.

- (a) Secondaries barred with black, a metallic lustre on neck.

*Columba livia intermedia* (Indian Blue Rock Pigeon)

- (b) No bars on wing quills, plumage iridescent.

- (1) A patch of black feathers with white tips on either side of the hind-neck.

*Alsocomus torringtonii* (Ceylon Wood Pigeon).

- (2) Mantle chestnut, the hind-neck without a mottled patch.

*A. puniceus* (Purple Wood Pigeon).

B.—Size smaller; wing under 7·5 inches, plumage dull.

- (a) Sexes alike; second and third wing quills longest.

- (1) A patch of black feathers tipped with gray on each side of the neck; wing 7·25.

*Streptopelia orientalis meena* (Indian Rufous Turtle Dove).

- (2) A collar, round the back of the neck, of black feathers, each tipped with a white spot; wing 5.

*S. chinensis ceylonensis* (Ceylon Spotted Dove).

- (3) A collar of plain black round the back of the neck; wing 6·5.

*S. decaocto decaocto* (Indian Ring Dove).

- (b) Sexes unlike; first and second quills longest; wing 5·5.

*Oenopopelia tranquebarica tranquebarica* (Indian Red Turtle Dove).

## 228. COLUMBA LIVIA INTERMEDIA

### The Indian Blue Rock Pigeon

*Gal-parēyiyā*, Sinhalese; *mādā-purā*, Tamil

*Columba intermedia* Strick. A.M.N.H. 1844. p. 39. (India); Legge p. 698; Oates & Blan. Vol. IV. p. 29.

*Description*.—Head slate gray; neck glossed all round with metallic green, changing into purple, especially on the lower hind-neck and upper breast; back and wings ashy gray; ~~rump~~ rump, upper tail coverts, and tail darker, the tail being broadly tipped with black; a black bar across the



greater wing coverts, also a second black bar, formed by the tips of the secondaries together with a broad band on the tertiaries; primaries grayish brown; under plumage dark slate gray; wing-lining whitish.

Bill black, the cere grayish white; iris brownish orange; legs and feet pinkish red.

Length 13.25; wing 8.75; tail 4.75; tarsus 1.1; bill from gape 1.

*Distribution*.—In Ceylon very local; confined to a few colonies on rocky islets off the coasts of the Trincomalie District and of the Southern Province, and on one or two of the isolated hills in the northern forest tract. This sub-species, which is merely the eastern form of the European Rock Pigeon, *C. livia*, is found practically all over India, especially in the west and north-west, and in the drier parts of Burma.

*Habits*.—This Pigeon roosts and breeds in colonies in the crevices of cliffs and rocks. It feeds on grain, especially paddy. In India it is commonest in cultivated country, and it is strange that it is not more abundant in this Island. According to Legge, in the Trincomalee District it breeds in May and June, but off the Hambantota coast I have taken the eggs in February and April. The nests were placed in the jagged rifts of a low, rocky islet, and consisted of a few twigs mixed with some dry grass and feathers. The two eggs are a smooth, glossy white, their average measurement being about 1.45 by 1.12.

## 229. ALSOCOMUS TORRINGTONII

### The Ceylon Wood-Pigeon

*Mā-ñila-goyā*, Sinhalese; *karuppu-purā*, Tamil.

*Palumbus torringtonii* Bonap. Consp. Gen. Av. ii. p. 42 (1854) (Ceylon); *P. torringtoniae*, Legge p. 694; *Alsocomus torringtoniae*, Oates & Blan. Vol. IV. p. 36.

*Description*.—Male: head and nape lilac gray, with a lilac and green gloss; a patch on the back and sides of the neck black, with broad, white tips to the feathers; the sides of the neck and the upper back glossed with reddish lilac; rest of the upper parts, including wings and tail, blackish brown; rump blackish gray; chin and middle of throat whitish; lower neck and breast lilac, glossed as on the upper back, but not so intensely; lower breast and abdomen paler; under tail coverts ashy brown with a reddish tinge.

Females are similar, but the head, chest, and under surface are more ruddy, and there is a deeper coppery hue on the lower hind-neck.

Bill lead coloured at the base, bluish at the tip; iris pale red; legs red in front, paler behind.

Length about 14; wing 7.6; tail 5.25; tarsus .9; bill from gape 1.

*Distribution*.—Peculiar to Ceylon; found only in the hill forests, mostly above 4,000 feet, but occasionally as low as 2,500.

*Habits*.—A shy, forest bird feeding entirely on fruit, especially wild cinnamon. Like many fruit eating pigeons, it roams about a good deal in search of its food, moving from locality to locality as the various jungle fruit trees ripen. The flight is powerful. The call is a deep "hoo," rather like the hoot of an owl. Little is known of its nidification. It would appear to breed during the north-east monsoon, making a slight stick nest placed in forest trees at a height of about 20 feet. Probably only one egg is laid, of a pure, glossy white, and measuring about 1.50 by 1.12.

### 230. *ALSOCOMUS PUNICEUS*

#### The Purple Wood-Pigeon

*Kurundu-kobēyiyā*, Sinhalese.

*Alsecomus puniceus* Tick. Blyth. J.A.S.B. xi p. 461 (1842) (Chyebassa); Legge p. 696; Oates & Blan. Vol. IV. p. 38.

*Description*.—The top of the head from the forehead to the nape, and a line under the eye grayish white; neck, cheeks, and throat pale chestnut brown; back, scapulars, wing coverts, and tertiaries rich chestnut, the feathers edged with glossy green and amethyst, the green predominating on the shoulders and the amethyst on the inter-scapulars and back; rump and upper tail coverts dark slaty gray, almost black, and edged with amethyst; wing quills and tail blackish brown; lower plumage, including wing-lining, pale vinous chestnut; under tail coverts rather paler than the tail.

Bill, the horny tip bluish white, basal portion lake pink; iris orange; legs and feet purple red.

Length 16; wing 8.75; tail 6; tarsus .9; bill from gape 1.1.

*Distribution*.—A specimen, probably a chance straggler, was once obtained by Layard in Ceylon. The species is unknown in Southern India, its range extending from the forests of Eastern Bengal through Burma to Cochinchina and Malaya.

*Habits*.—In India this Pigeon is found in forests near cultivation. It feeds both on fruit and on grain. Natives informed Layard that it visited Ceylon when the cinnamon fruit was ripe, and Legge thought he once saw a flock in the cinnamon on the outskirts of Colombo.

### 231. *STREPTOPELIA ORIENTALIS MEENA*

#### The Indian Rufous Turtle-Dove

Vernacular names not recorded.

*Colomba meena* Sykes. P.Z.S. 1832. p. 140. (Deccan); *Turtur pulchratus*, Legge p. 711; *T. ferrago*, Oates & Blan. Vol. IV. p. 41.

*Description*.—Head, neck, and back brown with a vinous tinge, the margins of the feathers shading into a dull rusty colour, and the forehead and crown often with a blue gray bloom; on each side of the neck is a patch of black feathers tipped with blue gray; the scapulars, the greater part of the wing coverts, and the tertiaries are slaty black with broad, rufous brown borders; outer wing coverts bluish gray, lightest at the tips; wing quills brown with a pale line on the outer border; lower back and rump bluish gray; upper tail coverts slaty brown with pale margins; tail blackish brown; all the feathers, except the middle pair, have pale gray tips, the tip and outer web of the outermost feathers being almost white; face and throat pale ashy brown; chin and centre of the throat almost white; neck and breast vinous gray; abdomen whitish; flanks and wing-lining ashy blue; under tail coverts pure white.

Young birds have no neck patch, and are duller brown, while the feathers of the back, wing coverts, and breast have pale borders.

Bill dull slate colour, the cere and hase reddish; iris light orange; legs and feet dull, or purplish red.

Length 13; wing about 7.25; tail 5.25; tarsus .85; bill from gape .95.

*Distribution*.—Stragglers have been recorded from Ceylon twice. This Dove is migratory, spreading in winter over nearly the whole of India, and breeding in the Himalayas and Central Asia.

*Habits*.—The bird may be looked for about Christmas time in the wetter districts of the Island. Its habits are very much those of the common spotted Dove.

## 232. STREPTOPELIA CHINENSIS CEYLONENSIS

### *The Ceylon Spotted Dove, or Ash Dove*

*Alu-kobēyiyā*, Sinhalese *ūmi-purā, mani-purā*, Tamil.

*Turtur ceylonensis* Reich. Vol. Nat. Tauben. Fig. 3373 (1851) (Ceylon); *T. suratensis*, Legge p. 705; Oates & Blan. Vol. IV. p. 43.

*Description*.—The upper part of the head and nape vinous gray, gray-er on the forehead and above the eye; a black spot between the eye and the bill; the sides and back of the neck black, each feather bifurcate and with two white spots on each fork; on the upper back the black ground colour shades into brown and the white spots into rufous, while the feathers become less forked; on the lower back and rump the spots are replaced by pale rufous fringes; scapulars and wing coverts brown at the base and grayish rufous at the tip, with wedge-shaped, black brown shaft-stripes; primary and greater wing coverts bluish gray with some brown; wing quills blackish brown; tail coverts ash brown,

the tips marked with a dark, central wedge and paler fringes on each side; four central tail feathers brown, the remainder almost black, with slate gray ends becoming paler and broader on the outer feathers; chin and centre of the throat whitish, the rest of the throat and the breast vinous; the centre of the abdomen and lower tail coverts often spotted at the tips with black.

Young birds have no black and white collar, are duller in colour, and less spotted on the back and wing coverts.

Bill dark lead colour; iris hazel with a reddish outer ring; legs and feet lake red.

Length 11.25; wing 5; tail 5.25; tarsus .85; bill from gape .7.

*Distribution*.—Abundant all over the Island up to about 3,000 feet; the same form occurs in S. Travancore. An allied sub-species ranges over the rest of India.

*Habits*.—A ground feeder, living on paddy, other grains, and grass seeds. It may be seen in swarms about native threshing-floors and newly reaped paddy fields, or in chenas, searching for the grains which have been dropped. The nests may be taken at almost any time of year. They are small, slight saucers of twigs, usually placed in thorny bushes, or low trees, about 5 to 10 feet above the ground. Generally two eggs are laid, but sometimes only one. They are broad ovals of pure white, measuring about 1.02 by .80.

### 233. STREPTOPELIA DECAOCTO DECAOCTO

#### The Indian Ring-Dove (Pl. XIV. Fig. 1.)

*Mala-kobēyiyā*, Sinhalese; *sāmbal-purā*, Tamil.

*Columba risoria decaocto* Frivalsky, A.M. Tarsasag. Evk. p. 183. (1838). (Turkey); *Turtur risorius*, Legge p. 702; Oates & Blan. Vol. IV. p. 46.

*Description*.—Head and neck gray with a lilac tinge, the forehead paler and the chin almost white; on the sides and back of the lower neck runs a collar of black, bordered above and below with a narrow edge of white; upper plumage from this collar to the tail, including the wing coverts, brownish gray; outer wing coverts and secondary quills largely tinged with bluish gray; primary coverts and quills dark brown; the middle tail feathers brownish gray, the outer feathers grayer with whitish tips, the white increasing towards the sides; breast lilac gray passing through dove gray on the abdomen and flanks into slate gray on the lower tail coverts; wing-lining very light gray.

Bill black; iris crimson; legs and feet purple red.

Length 12.25; wing 6.5; tail 5; tarsus .9; bill from gape .9.

Ceylon birds are slightly smaller than Indian.

*Distribution*.—Confined to the dry, north-west coast district from Jaffna to the north of the Puttalam District. Within these limits it is fairly common. This sub-species occurs in open country nearly all over India, except on the Malabar coast, and ranges from Western Europe to Japan.

*Habits*.—Found in open country dotted with scrub jungle; it is especially fond of places in which *Euphorbia* trees are abundant. The note is much deeper than that of the Ash Dove, and consists of three syllables. "kookoo—koo," repeated two or three times. It feeds principally on grain, but sometimes on fruit. The nest is the usual small saucer of twigs placed generally in *Euphorbia* trees from 5 to 15 feet above the ground. The two white eggs measure about 1.14 by .90.

### 234. OENOPOPELIA TRANQUEBARICA TRANQUEBARICA

#### The Indian Red Turtle-Dove

Vernacular names not recorded.

*Columba tranquebarica* Herm. Observ. Zool. p. 200 (1804) (Tranquebar); *Turtur tranquebaricus*, Legge p. 708; *Oenopopelia tranquebarica*, Oates & Blan. Vol. IV. p. 47.

*Description*.—Male: upper part of the head and neck dark ashy gray; a black collar round the sides and back of the neck; back, scapulars, wing coverts and innermost secondaries, together with the greater part of the lower plumage, vinous red, paler on the breast and fore-neck; primary coverts and quills blackish brown; lower back, rump, and upper tail coverts dark slate gray; the middle tail feathers brown tinged with gray, the next feathers dark gray at the base and with pale ends, the outermost pair being black at the base, with the whole outer web and the end half of the inner web white; chin and vent whitish, flanks and wing-lining very pale gray; under tail coverts white.

Female: the upper plumage brown; the black collar and colouring of the tail as in the male; the forehead and crown, the rump, flanks, and edge of the wing grayish, and the breast brownish gray, often with a vinous tinge.

Young birds resemble females, but have no collar, while the feathers of the back and wings have pale edges.

Bill blackish; iris dark brown; legs dull red, or brownish.

Length 9; wing 5.5; tail 4; tarsus .7; bill from gape .75.

*Distribution*.—Layard once found a small colony breeding in the Jaffna Peninsula. The same sub-species occurs throughout the greater part of India. Allied forms are found in N.E. India and Burma.

*Habits.*—This tiny Dove should be looked for in the dry, maritime parts in the north of the Island, where it may possibly be re-discovered. The birds found by Layard, probably in April, were nesting on the dry leaf-stems of a palmyra palm. The nest and two eggs are of the usual Dove type. The average measurement of the eggs is 1·02 by ·8.

## Order XII. GALLINAE

### Sub-Order ALECTOROPODES

#### Family PHASIANIDAE

#### Sub-family PHASIANINAE

#### *Game-birds*

The Game-birds, which in one form or another are found nearly all over the world, constitute a well-marked Order. The body is plump, the wings are rounded, with ten primary and five secondary quills, while the legs and feet are well developed for running and walking, and the bill is stout. In many genera the tarsus is furnished with a spur, sometimes with more than one. The hind toe is present and, in the Sub-family to which all our Ceylon species belong, it is short and raised above the level of the three front toes. In this Family, too, the tarsus and toes are naked. As a general rule the nest is placed upon the ground; the nestlings are covered with down when hatched, and can run about almost as soon as they come out of the egg.

Compared with many parts of India, Ceylon is poorly stocked with Game-birds. Only eight species, distributed amongst seven genera, have been authentically included in our list; most of them are rare, or local, while two are peculiar to the Island.

Turning to the characteristics of the various genera, the Peacock—*Pavo*—and the Jungle Fowl—*Gallus*—are too well known to require much description. The Spur Fowl—*Galloperdix*—belongs to an Indian genus, which in structure shows affinity with the Pheasant and Jungle Fowl, but which in appearance approximates to the Partridge. Of the Quail group, the Chinese Quail is placed in a separate genus—*Excalfactoria*—owing to slight differences in the wing and tail feathers, and to the greater dissimilarity between the sexes in the coloration of the under parts. The true Quails—*Coturnix*—are almost unknown in Ceylon; one species has recently been authenticated, while another may possibly occur. In parenthesis, it should be noted that the Bustard Quail, the “Quail” of Ceylon sportsmen, is not a true Game-bird, but belongs to the next Order. The Bush Quails—*Perdicula*—form another Indian genus. They are no larger than Quails, but rather resemble Partridges

in their habits, structure, and unspotted eggs. The list is closed by the Francolins—*Francolinus*—a Partridge-like genus with many African and five Indian species, two of which are found within our limits.

*Key to Ceylon Phasianinae*

A.—Size large; wing 6 inches, or over.

- (a) Wing about 20 inches in males, 16 in females ;  
an erect crest on the crown.

*Pavo cristatus* (Peafowl).

- (b) Males with a large fleshy comb ; wing about 9·5.  
Females with a rudimentary comb ; the wing  
about 7·5.

*Gallus lafayettii* (Ceylon Jungle Fowl).

- (c) No comb ; a naked patch round the eye ; wing  
6 to 6·5.

*Galloperdix bicalcarata* (Ceylon Spur-Fowl).

B.—Size small ; wing under 4 inches.

- (a) Tail of 8 feathers ; \* wing 2·75.

*Excalfactoria chinensis chinensis* (Blue-throated  
Quail).

- (b) Tail of 10 or 12 feathers ; \* first and second wing  
quills longest ; no spur ; wing 3·5.

*Coturnix coromandelica* (Black-breasted Quail).

- (c) Tail of 12 feathers ; fourth wing quill longest  
males with a blunt spur ; wing 3·25.

*Perdicula asiatica* (Jungle Bush-Quail).

C.—Size medium ; wing about 5·5; face completely feathered.

- (a) Back black and white.

*Francolinus pictus pictus* (Southern Painted Part-  
ridge).

- (b) Back brown and buff.

*Francolinus pondicerianus pondicerianus* (Southern  
Gray Partridge).

## 235. PAVO CRISTATUS

### The Common Peafowl

*Monarā*, Sinhalese ; *mayil*, Tamil.

*Pavo cristatus* Linn. S.N. i. p. 267 (1766) (India Orientali) ; Legge p. 731 ;  
Oates & Blan. Vol. IV. p. 68.

*Description*.—Male : the head, face, and throat are covered with  
short feathers of metallic green and blue, the blue predominating on the

\* The tail feathers in these species are concealed by their coverts.



crown and the green elsewhere ; from the crown springs an erect crest of feathers, with almost naked shafts and fan-shaped tips of black fringed with blue green ; neck all round and upper breast a rich metallic blue ; back feathers metallic green with black, circular margins at the tip and dark, wedge-shaped stripes adjoining the shafts, which are green ; these feathers shade into the bronze green plumes of the long train with their ocelli of purple and black ringed by blue green, copper green, and bronze ; scapulars, wing coverts, and tertiaries barred with buff and mottled with black ; primary coverts and quills chestnut, the secondary quills blue black ; some of the secondary coverts are black glossed with purple and green ; tail brown ; the breast and flanks glossy dark green ; the abdomen and fluffy lower tail coverts dark brown ; thighs buff.

Female: head and nape chocolate brown; the tips of the crest feathers chestnut fringed with green ; the upper plumage brown ; the coverts of the wings and tail finely mottled with buff, the quills darkish brown ; a patch on the throat and sides of the neck whitish ; below this the neck is chestnut, changing on the lower neck to metallic green ; breast feathers dark brown, glossed with green and with broad, buff fringes ; abdomen whitish buff ; vent and fluffy under tail coverts dark brown.

Young males resemble females, save that the primary quills are chestnut, or partly so.

Bill horny brown ; naked skin of face grayish ; iris dark brown ; legs and feet fleshy brown.

Male : length without train about 47 ; tail 22 ; wing 20 ; tarsus 5.75 ; bill from gape 2 ; the train in old birds may be up to 5 or 6 feet.

Females are smaller ; length about 38 ; wing 13 to 16 ; tarsus 5 ; bill 1.75.

*Distribution*.—Found in the scrubby tracts of the dry, coast zone from Puttalam to Jaffna, and down most of the east coast as far south as Ranna, a little east of Tangalla. It also occurs inland in the park country as far north as Polonnaruwa, and there are a few isolated colonies at the heads of some of the largest tanks in the North-Central and Northern Provinces. It is common in suitable districts throughout the low-country in India. In Burma it is replaced by an allied species.

*Habits*.—Peafowl are most common in scrub jungle, or forest adjoining wild, open spaces, in which the birds can come out to feed on grass seeds, insects, and small reptiles. In the forenoon and towards nightfall they perch on the branches of tall trees, from which they can keep a good look out. The cocks are polygamous, and may often be seen attended by four or five hens ; in the mating season they spread their trains and execute fantastic step dances to show off before their partners. The cry is a loud harsh " pee-auw." During the rains of the north-east

monsoon, or a little later, the hen lays three to five eggs in a small hollow of the ground, which it lines with dry grass, or leaves. The eggs are broad ovals measuring about 2.70 by 2.15; in colour they are brownish buff. The shell is extremely thick, much pitted, and fairly glossy.

### 236. GALLUS LAFAYETHI

#### The Ceylon Jungle Fowl

*Weli-kukulā*, m, *weli-kikili*, f, Sinhalese; *kāddu-kōli*, Tamil.

*Gallus lafayethii* Less. Traité d'Orn.p. 491 (1831) (Ceylon); Legge p. 736; Oates & Blan. Vol. IV. p. 77.

*Description*.—Male: the hackles of the neck and the smaller wing coverts are golden, or straw yellow, with dark shaft-stripes: on the crown the feathers shade into chestnut, on the back, scapulars, medium wing coverts, and elongated feathers at the side of the rump into shining yellowish red with almost black shaft-stripes; feathers of the lower back and centre of the rump amethyst with reddish chestnut margins; greater wing coverts black splashed with dull chestnut; primary quills dark brown, secondaries black with a metallic purple gloss; tail coverts glossy violet; tail feathers black with a purple and steel blue gloss; fore-neck glossy purple, the breast bright chestnut with dark shaft-stripes, shading through reddish brown on the upper abdomen into dull blackish brown with rufous edges on the thighs and towards the vent; under tail coverts green black.

Female: the crown is dark brown, the sides and back of the neck blackish brown with rufous edges to the feathers; these colours gradually shade into the fine, vermiculated, blackish brown and buff of the back, scapulars, and wing coverts; rump and tail similarly coloured, but the shafts of the feathers are darker; primary quills dark brown with lighter mottlings on the outer web; secondaries and greater wing coverts black, boldly marked with mottled, buff cross-bars and tinged at the ends with rufous; the chin and throat are almost naked; the fore-neck and breast are mottled black and brown with broad buff, centres; lower breast and abdomen white with broad, black markings, which disappear towards the vent; under tail coverts of the same colour as the tail.

Young males resemble females, but the upper plumage is more rufous, and there is no white on the under parts.

In the male the bill is brownish red, paler at the tip and on the lower mandible; comb orange yellow, shading into bright red on the edge; the naked face, throat, and wattles are purplish red; iris light yellow; legs and feet pale yellow, darker down the front; tarsus armed with a sharp spur.

In females the bill is dark brown, paler beneath; iris olive yellow; feet and legs as in the male, but without any spur.

Male: length about 27; wing 9.5; tail 13 to 15; tarsus 3.25; bill from gape 1.2.

Female: length about 14; wing 7; tail 4; tarsus 2.5; bill 1.1.

*Distribution*.—Peculiar to Ceylon. Found in most parts of the Island, except in the more cultivated districts. Its chief haunts are the forests of the north and the scrub jungle of the dry, maritime districts. It ascends in great numbers to the Horton Plains and other elevated plateaux when the *nellu* (a species of *Strobilanthes*) is ripe, to feed on the seeds.

*Habits*.—A jungle bird living largely in the cover of the undergrowth. In the morning and evening, especially after rain, it comes out on the roads, jungle paths, and open spaces in the forest to feed; during the heat of the day it keeps well inside the jungle, and at night time roosts in trees. The cry of the cock, "cluck—joy-joyce," may be heard constantly from sunrise till about 9 a.m.; the hen has a curious, little, metallic clucking cry. The cocks appear to be polygamous, and to leave all family cares to the hens. I have taken the eggs in nearly every month of the year. The nest is sometimes a small hollow in the ground under a bush, or behind a fallen log, the eggs resting on a few dry leaves. I have, however, often found it in such situations as on the stump of a felled tree, in the tangle of dry leaves caught up by a bush overhanging a water-course, or in an oven-shaped hollow in a tree trunk. The eggs vary in number from two to four. In shape they resemble those of a domestic hen. The ground colour is creamy white with light brown, or purple brown markings, which vary from an excessively fine stippling all over the egg to comparatively large and scattered freckles. Their average size is 1.82 by 1.39.

## 237. GALLOPERDIX BICALCARATA

### The Ceylon Spur-Fowl

*Haban-kukulā*, Sinhalese.

*Perdix bicalcaratus* Forst. Ind. Zool. p. 25. pl. 14 (1781) (Ceylon); *Galloperdix bicalcarata*, Legge p. 742; Oates & Blan. Vol. IV. p. 109.

*Description*.—Male: the top of the head, the back and the sides of the neck, the upper back, the sides of the breast, and the flanks are black, with white shaft-stripes, which are narrowest on the head and broadest on the flanks; the inter-scapulars, scapulars, and wing coverts have conspicuous, white, wedge-shaped shaft-stripes surrounded by a broad, black border, the rest of the feathers being chestnut, vermiculated with black; lower back, rump, and tail coverts rufous chestnut finely mottled with black; primary quills dark brown; the secondaries mottled with

chestnut; the tail black, with minute, indistinct, chestnut mottlings; feathers of the face and throat white edged with black, the chin white; the centre of the breast and the upper abdomen white with black borders, giving a scaly effect; lower abdomen dirty brown mixed with whitish gray; the under tail coverts brownish black with paler tips.

Female: head and hind-neck blackish brown; chin whitish; most of the remainder of the plumage dull chestnut finely mottled with black, except on the breast; wing quills and tail as in the male.

Bill, legs, and feet red; naked skin round the eye red; iris yellowish brown. In males the tarsus is armed with spurs, generally two on each leg; sometimes the number is uneven. In females the spurs are smaller and generally uneven in number, while at times one leg is spurless.

Length 13.5; wing 6.5; tail 4; tarsus 2; bill from gape 1; females are smaller, length 11.75; wing 6.

*Distribution*.—Peculiar to Ceylon. It is found up to about 4,500 feet in the central hill zone and in the forests of the damp zone. In the north it does not extend much beyond the foothills of the main ranges; in the south-east it spreads further into the dry, flat country between the hills and the sea.

*Habits*.—The “Haban-kukula” is a very shy bird. Like the English Corn-crake, it is constantly heard, but seldom seen, and possesses undoubted powers of ventriloquism. In the foothills of the Southern Province, where it is very common, its piping note may be heard nearly all the morning among the undergrowth and *lantana* scrub.

The breeding season appears to be from about November to March, or April, and occasionally again in July and August. Usually two eggs, sometimes more, are laid in a slight hollow of the ground under a bush in the jungle. In colour they are cream, or *café-au-lait*, at times with a few, white, chalky specks. In shape they are long ovals, slightly pointed at the narrow end. The average size of 8 eggs from the low-country is 1.67 by 1.20.

### 238. EXCALFACTORIA CHINENSIS CHINENSIS

#### The Blue-throated Quail (Pl. XIV. Fig. 3.)

*Pandara-watuwā*, *wil-watuwā*, Sinhalese; *kādai*, Tamil.

*Tetrao chinensis* Linn, S. N. i. p. 277 (1766) (China); *Coturnix chinensis*, Legge p. 758; *Excalfactoria chinensis*, Oates & Blan. Vol. IV. p. 112.

*Description*.—Male: upper plumage in general brown, vermiculated and blotched with black; in younger birds the feathers of the back and rump have conspicuous, white shaft-stripes; in very old birds these fade away, and the upper parts are largely tinged with bluish gray;

in some birds the larger wing coverts are washed with chestnut ; wing quills dull brown, the tail slaty blue edged with chestnut, in old birds entirely chestnut; the sides of the head slaty gray, or brownish ; the chin and throat black, bordered on each side by a white cheek stripe edged above with black ; lower fore-neck white bordered by a band of black ; the upper breast, the sides of the breast, and the flanks bluish gray ; the rest of the under surface chestnut.

Female : on the upper parts the plumage resembles that of young males, but there is more black on the scapulars and wing coverts ; the forehead, eyebrow, face, chin, and throat are pale rufous brown, lightest on the chin and throat ; lower parts buff, with black cross-bars on the breast, flanks, and thighs.

Bill black, lead coloured at the base ; iris in adult males crimson, in young males and in females yellowish-red ; legs and feet yellow.

Length 5·5 ; wing 2·75 ; tail ·9 ; tarsus ·85 ; bill from gape ·45.

*Distribution*.—Found here and there in the low-country and in the hills up to about 4,000 feet. Rare in Southern India, commoner in Bengal and the plains of Northern India ; ranges eastwards through Burma to South-eastern Asia and Southern China.

*Habits*.—Nowhere in the Island is this species very common ; it is occasionally met with in damp grass, especially round the edges of tanks and in rough, grassy paddy fields. The breeding season is generally about May. Four to six eggs are laid on a little pad of grass in a hollow of the ground amongst damp herbage. I once, however, got a clutch of seven eggs in January in the North-Central Province, from a nest which was a pad of grass, lined with soft rootlets and moored to the floating stems of a water grass in about a foot of water at the head of a tank.

The eggs are dumpy ovals of brownish olive, thinly speckled with very dark brown dots. Their average measurement is ·98 by ·76.

### 239. COTURNIX COROMANDELICA

#### The Black-breasted Quail

*Wil-watuwā*, *pun-watuwā*, Sinhalese ; *kādai*, Tamil.

*Tetrao coromandelicus* Gmel. S.N. i. p. 764 (1789) (Coromandel Coast); not in Legge ; *Coturnix coromandelica*, Oates & Blan Vol. IV. p. 116 and 486.

*Description*.—Male : the crown and nape black with brown edges and a buff streak down the centre ; a white stripe from the forehead over each eye to the hind-neck ; back, rump, and upper tail coverts mottled black and light brown with broad, whitish buff shaft-stripes ; scapulars and wing coverts sandy brown with buff shaft-stripes and markings ; primary

quills drab brown ; throat and fore-neck white ; down the chin and centre of the throat is a black stripe which crosses a curved, black band running across the throat to the ear coverts ; another black stripe runs also to the ear coverts from the gape of the bill, passing below the eye ; the breast and sides of the body rufous buff with broad, black, median stripes : in old birds almost the whole breast is black ; the centre of the abdomen and the lower tail coverts are buff.

In females the chin and throat are buff, while the breast is rufous brown with buff shaft-stripes and dark brown spots.

Bill in males blackish, in females brownish horn ; iris brown ; legs, pale fleshy.

Length 7 ; wing 3·5 ; tail 1 ; tarsus 1 ; bill from gape ·5.

*Distribution*.—The species has been recorded from the environs of Colombo, and there are three specimens in the Colombo Museum taken near that town ; it is probably not a resident. It occurs throughout the greater portion of India, where it is partially migratory. In Burma it appears to be confined to the Irrawaddy valley.

*Habits*.—This Quail is found in grass land and growing crops of dry grain, moving from district to district with the seasons. It is just possible that stray birds may be found breeding in the Island. The nest is a mere hollow in the ground ; the eggs, four to nine in number, are whitish to brownish buff, speckled thickly with brown, and measuring about 1·00 by ·83.

[*Note*.—*Coturnix coturnix coturnix*, the Gray Quail, may possibly occur in Ceylon. Legge (p. 757) states that Mr. Bligh, a well-known Ceylon Ornithologist, met with a pair of quails larger than the Bustard Quail in the Yala district one January. He was, however, unable to obtain a specimen, but concluded that they were Gray Quail. The species differs from *C. coromandelica* in being larger, with a wing measurement of 4 inches, and by having pale cross-bars on the primary quills.]

## 240. PERDICULA ASIATICA

### The Jungle Bush-Quail

*Pandara-watuwā*, *wil-watuwā*, Sinhalese ; *kādai*, Tamil.

*Perdix asiatica* Lath. Ind. Orn. ii. p. 649. (1790) (Maharatta Region) ; *Pardicula asiatica*, Legge p. 752 ; Oates & Blan. Vol. IV. p. 118.

*Description*.—Male : the crown rufous brown with some blackish markings ; it is bounded below by a white streak running over the eye to the nape ; forehead, eyebrow, chin, and throat rufous chestnut ; hind-neck and upper back brown, with light shaft-stripes and narrow, black, wavy cross-bars ; rump and upper tail coverts similarly coloured, but the

pale shaft-stripes are wanting, and there are some dark buff, black-bordered markings; scapulars, wing coverts, and tertiaries more boldly marked with blackish brown and dark buff; wing quills brown with buff markings on the outer webs; tail brown with wavy cross-bars of black and dark buff; cheek feathers whitish with black edges; under parts from the lower neck barred black and white; lower abdomen, thighs, and under tail coverts rufous.

In females the upper plumage is similar, but less conspicuously marked than in the male; the under parts from the fore-neck are plain, dull rufous with a grayish, or lilac tinge on the breast.

Young birds lack the chestnut on the head, while the shaft-stripes on the upper plumage are broader; under parts dull rufous with pale shaft-stripes on the throat, fore-neck, and sides of the breast.

Bill dark horn-colour, the lower mandible paler; iris brown; legs yellowish red.

Length 6.5; wing 3.2; tail 1.4; tarsus 1; bill from gape .5.

*Distribution*.—In Ceylon confined to the grassy glades in the forest from the foothills of the Uva ranges eastwards through the park country. It does not appear to extend much south of the Kumbukkan river, nor as far north as the Mahaweli-ganga. In India it occurs in well-wooded tracts from the lower Himalayas to the extreme south of the peninsula.

*Habits*.—Like the Partridge this species goes about in covies, and may be found in the grassy "talawas" of the park country. After rain the birds come out on to roads and paths in search of food. Like other quails, when flushed, they fly straight and swiftly for a short distance, then suddenly drop into the grass and run. They breed about April, making a small nest of grass on the ground under a bush, or tuft of grass. The full clutch is from five to seven eggs of creamy white, rather pointed at one end, and measuring about 1.02 by .84.

## 241. *FRANCOLINUS PICTUS PICTUS*

### The Southern Painted Partridge

*Ussa-watuwā*, *pun-kukulā*, Sinhalese; *kauthāri*, Tamil.

*Perdix picta* Jard. and Sel. Ill. Orn. pl. 50 (1828) (Bangalore); *Francolinus pictus*, Legge p. 744; Oates & Blan. Vol. IV. p. 137.

*Description*.—Male: the forehead, face; and a broad stripe over the eye to the sides of the nape dull rusty red; the feathers of the crown and nape black with buff edges; on the back and sides of the neck the buff edges are broader and more rufous; the upper back black with white spots; the scapulars browner with transverse and arrow-shaped bars of rufous buff; the wing coverts similarly coloured, but with more blotchy

buff markings; wing quills brown with broad, blotchy, rufous bars; the lower back, rump, upper tail coverts, and central tail feathers black with narrow, white cross-bars, the outer tail feathers with black ends, broadest on the outermost pair; chin and throat pale rust colour, the fore-neck with black streaks; breast and flanks black with large, scaly, white spots, which increase in size on the flanks; abdomen pale rufous shading into chestnut on the under tail coverts; lower flanks rufous barred with black.

Female: the upper parts are less conspicuously marked; the rump and tail are browner, with the white cross-bars set further apart; throat whitish; the under parts buff with broad, irregular bars of black, at times approaching in character the markings of the male.

Bill blackish; iris yellowish brown; legs and feet yellowish red.

Length 12; wing 5.5; tail 3; tarsus 1.6; bill from gape 1.05.

*Distribution*.—In Ceylon confined to the patanas of the Uva hasin and the south-eastern and eastern slopes of the hills towards Wellawaya and Nilgala. The same sub-species occurs in various parts of Central India, becoming rarer southwards, and wanting south of Coimbatore. An allied race is found in Northern India.

*Habits*.—This partridge frequents the patanas, ferny slopes, and scrub jungles within its limits. It is of rather skulking habits, coming out into the open only early in the morning, late in the evening, or after rain. When flushed it rises with a whirr, rather like an English Partridge. It breeds apparently about Christmas time, making a grass nest in a hollow under a bush, or tuft of grass. There are seven or eight eggs, which in colour are creamy white, or drab, and in shape broad at one end and pointed at the other. They measure about 1.50 by 1.18.

## 242. *FRANCOLINUS PONDICERIANUS PONDICERIANUS*

### The Southern Gray Partridge

*Ussa-watuwā*, Sinhalese; *kauthāri*, Tamil.

*Tetrao pondicerianus* Gmel. S.N. i. 2. p. 760 (1789) (Pondicherry); *Ortygornis pondicerianus*, Legge p. 748; *Francolinus pondicerianus*, Oates & Blan. Vol. IV. p. 139.

*Description*.—The sexes are alike: crown and nape olive brown; forehead rufous; a broad eyebrow, with the cheeks and throat, paler rufous, the lores speckled with black; hind-neck, back, scapulars, and wing coverts grayish brown, splashed with chestnut and chequered by cross-bars of buffy white, with narrow, black edges and white shafts; wing quills brown, at times with whitish spots on the outer webs; secondaries barred with pale buff; the upper tail coverts and the two central tail feathers marked like the back, but without any chestnut; the remaining tail feathers chestnut, deepening towards the end to nearly



black, but with pale tips; a patch on the chin and throat rufous buff, or whitish, bordered by a broken line of deep brown; remainder of lower parts grayish white, tinged on the breast with rufous and crossed by narrow, wavy, black bars, which fade away on the abdomen and tail coverts.

Bill dusky brown, paler beneath; iris light hazel; legs and feet dull red.

*Length* 12·25; *wing* 5·6; *tail* 3·3; *tarsus* 1·7; *bill from gape* ·9. Females are slightly smaller.

*Distribution*.—Restricted to the dry zone of the north-west coast from the Jaffna peninsula to Puttalam, with the adjacent islands. This sub-species also occurs in S. India, and an allied form in N. W. India.

*Habits*.—Found in open ground dotted with scrub jungle, but never very far from cover. It is a strong runner and often rather difficult to flush. The noisy call is constantly uttered in the early morning and again in the evening. The breeding season is from May to August and perhaps again in December. The nest is a small hollow under a bush, or grass tuft. The eggs vary in number from six to eight or nine; they are of the usual Partridge type, pale buff in colour, and measuring about 1·3 by 1·03.

## Order XIII. HEMIPODII

### Family TURNICIDAE

#### *Three-toed Quails*

The Three-toed Quails are a group of Quail-like birds, which have been placed in an Order apart from the Game birds owing to several important distinctions in their anatomical structure. As regards the Indian forms, the chief external difference is the lack of a hind toe, though in an Australian genus the hind toe is present. Only one genus occurs within Indian limits, and but a single form, which is sub-specifically distinct, in Ceylon. In this genus the females are larger and generally more brightly coloured than the males. They take advantage of their superior position, leaving the cocks to incubate the eggs and look after the chicks.

#### 243. TURNIX JAVANICA LEGGEI

##### *The Ceylon Bustard Quail*

*Bola-watuwā*, Sinhalese; *kādai*, Tamil.

*Turnix javanica leggei* Stuart Baker, Bull. B.O.C. xliii. p. 9 (1920) (Ceylon); *T. taigoor*, Legge p. 761; *T. pugnax*, Oates & Blan. Vol. IV. p. 151.

*Description*.—Male: head and upper parts rufous brown; eyebrows, lores, and sides of head speckled black and whitish; the crown black with rufous edges to the feathers and often with a paler stripe down the middle; the plumage of the back is very variably marked, the rufous ground being irregularly banded with black, and many of the feathers edged with white; wing coverts buff with broad, black bars; wing quills dark brown, the outer webs of the primaries edged with buff, the outer webs of the secondaries with buff indentations; the throat, fore-neck, and chest whitish buff; the breast buff with black bars; the rest of the lower parts tawny rufous.

Female: chin, throat, and a patch of variable size on the middle of the breast black; the stripe down the centre of the crown speckled black and white; the lower parts deeper rufous.

Bill slate colour, dusky brown on the ridge; iris white, or pale yellow; legs and feet leaden.

Length of female 5.3; wing 3.3; tail 1; tarsus 1; bill from gape .65.

*Distribution.*—This sub-species is peculiar to Ceylon and occurs in chena, scrub jungle, or patana nearly all over the Island, except perhaps on the higher hills. Allied races are found in similar localities throughout India and Burma, and from thence east and south-east to South China, Malaya, Java, &c. The Ceylon sub-species is slightly larger, much darker and more richly coloured than the Indian race.

*Habits.*—This is the "Quail" usually met with in Ceylon. During the day the birds keep to cover, coming out into bare, open spaces mainly in the morning and evening. When flushed they fly off with some speed for a few yards, then suddenly drop into cover and run, seldom taking flight a second time. Their food consists chiefly of small seeds. The hens challenge their rivals by making a low, drumming call, and often have furious fights with each other. If conditions are favourable, breeding seems to go on for a great part of the year, and I have taken eggs from February to August and again in November and December. They vary from two to four in number, and are usually laid in a small hollow under the shelter of a grass tuft, or bush. The colour varies from dirty white to almost olive brown, thickly speckled with inky gray and black, or dark brown spots; the size of the darker spots varies greatly in different clutches. In shape they are dumpy ovals, rather pointed at one end. The average size is .91 by .71.

## Order XIV. GRALLAE

### Sub-order FULICARIAE

#### Family RALLIDAE

##### *Rails &c.*

The Indian members of this Order are divided into three Sub-orders: *Fulicariae*, the Rails; *Megalornes*, the Cranes; and *Otides*, the Bustards. In Ceylon, however, we have no Cranes, or Bustards, and the *Fulicariae* are confined to a single Family *Rallidae*, which comprises the true Rails, the Crakes, and the Water Hens.

The Ceylon members of the Family are all marsh birds, greatly given to skulking in reeds and thick, grassy swamps. Owing to their fondness for keeping to cover, it is probable that some of our rarer species are in reality far more generally distributed than would appear from the few recorded occurrences. Rails are usually slender in build, and stand fairly high on the legs. The toes are long and narrow and not webbed, though all our species are good swimmers. The wings are short, and the flight awkward; but in spite of this several species are migratory, and must cover long distances. The tail is short and constantly jerked up and down as the birds walk. The bill is usually moderately stout, the nostrils linear and lying in a groove.

The Family is mainly vegetarian, feeding on seeds, grain, and water plants, but the food in addition consists of insects, larvae, and the smaller forms of molluscs and crustaceans. The nest is generally a large, rough structure of grass, or rushes, placed on, or near the ground. The eggs are as a rule, spotted with two different colours, and are usually fairly numerous. The young when hatched are covered with down, and can run and swim within a few hours of their birth. Within our limits are found nine species, each the sole representative of its genus, with the exception of *Amaurornis*, of which we have two members. The four larger species are resident and comparatively abundant, the five smaller are rare and mainly migratory, though two of them have been known to nest in the Island, and others may possibly do so, as they are partially resident throughout their range in India and Burma.

## Key to Ceylon Rallidae

I.—Bill from gape not shorter than tarsus. Length 10 to 11 inches.

- (a) Bill slender; back streaked brown and black.  
*Rallus aquaticus indicus* (Indian Water-Rail).
- (b) Bill stouter; back brown speckled with white.  
*Hypotaenidia striata striata* (Blue-breasted Banded Rail).

II.—Bill from gape much shorter than tarsus.

A.—No frontal shield,

- (a) Length 7.5 inches. Upper parts brown, streaked with black, and smeared with white.  
*Porzana pusilla pusilla* (Eastern Baillon's Crake).
- (b) Length 10 inches. Back olive brown; lower parts below breast barred black and white.  
*Rallina superciliaris* (Banded Crake).
- (c) Length 8 inches. Upper plumage olive brown; lower parts vinous chestnut.  
*Amaurornis fuscus fuscus* (Ruddy Crake).
- (d) Length 12 inches. Upper plumage black; breast white; stern chestnut.  
*Amaurornis phoenicura phoenicura* (Ceylon White-breasted Water-Hen).

B.—Length 12 inches or over. A horny shield on forehead formed by a backward prolongation of upper mandible.

- (a) Sexes alike; frontal shield rounded behind; toes with a narrow, straight fringe.  
*Gallinula chloropus parvifrons* (Indian Moorhen).
- (b) Sexes dissimilar; shield pointed behind and, in breeding males, prolonged into a horn.  
*Gallinix cinerea* (Water-Cock).
- (c) Sexes alike; shield square behind; plumage blue.  
*Porphyrio poliocephalus poliocephalus* (Indian Purple Coot).

## 244. RALLUS AQUATICUS INDICUS

## The Indian Water-Rail

*Punchi-korowakā*, Sinhalese; *kanan-kōli*, Tamil.

*Rallus indicus* Blyth, J.A.S.B. xviii p. 820 (1849) (Bengal); Legge p. 778; Oates & Blan. Vol. IV. p. 158.

*Description*.—Upper plumage black with wide, olive brown margins to the feathers; ashy gray above the eye, on the cheeks, and sides of throat; a dark brown streak from the bill through the eye to the ear coverts; most of wing quills dark brown; chin white; lower parts ashy gray, washed with brown on the breast; flanks barred black and white; under tail coverts black, edged with white.

Young birds have white bands on the wing coverts.

Bill brown, the basal portion of the lower mandible scarlet in adults, yellowy red in young birds. Iris red; legs and feet dull yellowish pink.

Length about 11; wing 5; tail 2; tarsus 1.7; bill from gape 1.75. Females rather smaller.

*Distribution*.—A rare straggler to Ceylon. The only specimens recorded are a few birds taken years ago near Ja-ela. This sub-species breeds from Japan to E. Siberia and the Himalayas, and winters in parts of India &c.

*Habits*.—A shy, skulking bird found in grass and rushes round marshes or in paddy fields.

#### 245. *HYPOTAENIDIA STRIATA STRIATA*

The Blue-breasted Banded Rail (Pl. XV. Fig. 1.)

*Kiri-méti-korowakā*, Sinhalese; *kanan-kōlī*, Tamil.

*Rallus striatus* Linn. S.N. i. p. 262 (1766) (Philippines); *Hypotaenidia striata*, Legge p. 775; Oates & Blan. Vol. IV. p. 160.

*Description*.—Crown and back of the neck chestnut; rest of the upper surface, including wings and tail, dark olive brown, speckled with broken, white crossbars; throat and chin white; face, foreneck, and breast ashy gray; remainder of the under surface blackish with white bars.

Females are duller, and have the middle of the abdomen dirty white.

Young birds have a brown cap and no white crossbars on the back.

Bill stouter and shorter than in the last species and variable in colour; upper mandible brown, lower some shade of red; legs and feet olive green, or gray; iris red, or yellowy brown.

Length 10.5; wing 4.65; tail 1.75; tarsus 1.55; bill from gape 1.65.

*Distribution*.—A rare resident scattered through the low-country and in some localities in the hills. It is not unfrequent in Bogawantalawa, where a few birds seem to stay all the year. Some birds may be migrants. This sub-species occurs over the greater part of India and Burma.

*Habits*.—Similar to those of the last species, but the bird is more silent. It breeds just after the heavy rains of either monsoon, as I have eggs taken in December in the N. W. Province, and in August and September in the Galle District. The nest is a pad of flattened down grass

stalks on the edge of a paddy field ; eggs five to eight in number, pinky white, rather sparingly spotted, chiefly at the larger end, with reddish brown and pale grayish purple. Average size 1.35 by 1.02.

## 246. PORZANA PUSILLA PUSILLA

### The Eastern Baillon's Crake

*Punchi-korowakā*, Sinhalese ; *kanan-kōli*, Tamil.

*Rallus pusillus* Pallas, Reis. Russ. Reich. iii. p. 700. (1776) (Dauria) ; *Porzana bailloni*, Legge p. 766 ; *P. pusilla*, Oates & Blan. Vol. IV. p. 165.

*Description*.—Upper plumage brown with black streaks and some white marks as if smeared with white paint ; face, throat, neck, and breast ashy gray ; a brown stripe runs from the base of the bill through the eye to the side of the neck ; abdomen barred black and white. In young birds the gray of the lower parts is replaced by buff.

Bill short and comparatively stout, green in colour ; iris in adults red, in young birds reddish brown ; legs and feet green tinged with yellow ; toes long.

Length about 7.5 ; wing 3.5 ; tail 1.75 ; tarsus 1.1 ; bill from gape .7

*Distribution*.—May be looked for in swamps throughout the low-country. Only recorded a few times from Ceylon, but largely overlooked owing to its small size and skulking habits. On one circuit in the Southern Province I came across five specimens. Probably most birds are migratory, but some may possibly be found breeding. Found scattered throughout India and Burma in suitable localities, its range extending through Eastern Asia. Most birds migrate, but some reside in India all the year round.

*Habits*.—This is smallest of our rails, being no larger than a slim quail. It runs in and out of the rushes round the edges of swamps, keeping much to cover and being hard to flush. The nest is the usual pad of rushes, grass, &c., on floating vegetation, or amongst swampy grass. The eggs are five to seven in number, pale olive, rather streakily marked with darker brown, and measure about 1.16 by .87.

## 247. RALLINA SUPERCILIARIS

### The Banded Crake

*Kiri-mēti-korowakā*, Sinhalese ; *kanan-kōli*, Tamil.

*Rallus superciliaris* Eyton, A.M.N.H. xvi. p. 230 (1844) (Malay Penin.) ; *Rallina eurizonoides*, Legge p. 772 ; *R. superciliaris*, Oates & Blan. Vol. IV. p. 167.

*Description*.—Head, neck, and upper breast chestnut ; chin and throat whitish ; wing quills dark brown ; remainder of upper plumage dark brownish olive ; rest of lower parts boldly barred black and white.

An old female in the Museum collection resembles the male, another probably younger, has the crown and nape olive brown.

Young birds are brown on the head, neck and breast.

Bill of moderate length and fairly stout, dark brown in colour and green at the base; iris blood red; legs and feet grayish black.

Length about 10; wing 5; tail 2.2; tarsus 1.7; bill from gape 1.2.

*Distribution*.—A rare, but fairly constant migrant, arriving in October, or November and leaving about February; some birds may be resident, as a specimen was obtained at Bogawantalawa in July 1913. It occurs throughout India, Burma and the Malay Peninsula and is resident at any rate in parts of its range.

*Habits*.—Most specimens are seen in Colombo, where they arrive at the outset of the N.E. Monsoon in a very exhausted condition, and take refuge in verandahs, outhouses &c. When recovered they make for the hills. The bird is nocturnal in its habits and frequents sedgy streams and paddy fields in the hills. At times it wanders into the jungle. It has been found breeding in various parts of India. The nest is a fairly large structure of dead leaves and sticks placed in bushes in scrub jungle. Four to eight eggs are laid. The colour is a creamy white and the texture close. Average size 1.35 by 1.03.

## 248. AMAURORNIS FUSCUS FUSCUS

### The Ruddy Crake

*Punchi-korowakā*, Sinhalese; *kanan-kōli*, Tamil.

*Rallus fuscus* Linn. S.N. i. p. 262 (1766) (Philippines); *Porzana fusca*, Legge p. 769; *Amaurornis fuscus*, Oates & Blan. Vol. IV. p. 170.

*Description*.—Upper plumage olive brown, the rump, upper tail coverts and tertiaries browner; wing quills and tail dark brown; forehead, sides of the head, neck, and lower parts, except the abdomen, vinous chestnut; a trace of white on the throat; abdomen and lower tail coverts brown with whitish streaks.

Young birds are uniformly dusky olive, with the exception of the chin, throat, and centre of the abdomen, which are whitish.

Bill olive brown; iris orange red; legs and feet reddish.

Length about 8; wing 4; tail 1.5; tarsus 1.4; bill from gape about 1.0

*Distribution*.—Scattered sparingly through the low-country and found here and there in the hills. Most birds are probably migrants, but some undoubtedly breed with us. This sub-species occurs in S. India, also in the Philippines, Borneo, Sumatra, &c.

*Habits*.—Frequents rushy ponds and swamps, hunting for food on floating lily leaves, or amongst the vegetation in swamps. It occasionally wanders up-country, where it may be found on the banks of streams.



The nest is the usual pad of weeds, or grass placed either on floating weeds, or amongst the herbage in swampy ground. The eggs three to five in number, measure about 1·2 by ·84 and are of creamy white streaked and spotted with reddish brown and pale inky purple.

## 249. AMAURORNIS PHOENICURA PHOENICURA

### The Ceylon White-breasted Water-Hen

*Korowakā*, *mēti-korowakā*, Sinhalese ; *kanan-kōli*, Tamil.

*Rallus phoenicurus* Pennant, Ind. Zool. ix. p. 10 (1769) (Ceylon); *Erythra phoenicura*, Legge p. 786; *Amaurornis phoenicurus*, Oates & Blan Vol. IV. p. 173.

*Description*.—Upper plumage and sides of body slaty black tinged with olive; forehead, sides of face, and lower parts from chin to breast white; wing quills blackish brown, the outer edge of the first primary and the edge of the wing white; abdomen rufescent, darkening to chestnut on the vent and under tail coverts.

In young birds the forehead, crown, and upper parts are olive brown, and the white feathers of the lower parts have dusky tips.

Bill greenish, red at the base; iris brown. or brownish red; legs olive yellow.

Length 12; wing 6·25; tail 2·5; tarsus 2·25; bill from gape 1·5. Females slightly smaller.

*Distribution*.—Abundant in the neighbourhood of water all over the low-country and up to about 2,000, or 3,000 feet. Resident here and there at much higher elevations. The same sub-species occurs in Travancore. An allied race is found over the rest of India and eastwards to China.

*Habits*.—This bird with its loud cry must be familiar to most people in Ceylon. It often wanders some way from water to feed in the open, but it makes a bee-line for cover at a sharp run whenever disturbed. The nest is a large pad of rushes, grass, or leaves, sometimes on floating clumps of vegetation, sometimes on swampy ground, or occasionally in bushes, or reeds a little way above the surface of the water. The eggs are four to seven in number, elongated ovals, obtuse at both ends. They are creamy white in colour with pale grayish purple blotches overlaid with markings of deeper red brown, mostly round the large end, but often longitudinally streaked over the rest of the surface. Average measurements 1·59 by 1·19.

250. *GALLINULA CHLOROPUS PARVIFRONS**The Indian Moorhen*

*Wil-kukulā*, Sinhalese; *kanan-kōli*, Tamil.

*Gallinula parvifrons* Blyth, J.A.S.B. xii p. 180 (1843) (Calcutta); *G. chloropus*, Legge p. 781; Oates & Blan. Vol. IV. p. 175.

*Description*.—Back and wing coverts olive brown; tertiaries and upper tail coverts rusty brown; primary coverts and wing quills almost black; head and neck slaty black, shading into slate gray on breast and flanks; some white streaks on the flanks and a white patch under the tail; middle of abdomen almost always partly white.

Bill yellow at the tip, remainder red; the upper mandible prolonged on the forehead into a red shield, rounded at the back; iris red; legs olive green, with an orange garter just below the feathered portion.

Young birds are lighter above, and the slate gray of the lower parts is mixed with whitish; bill and shield olive coloured; orange garter absent.

Length 12.5; wing 6.5; tail 2.75; tarsus 1.9; bill from gape 1.1. Females slightly smaller.

*Distribution*.—This bird, which was a great rarity in Legge's time fifty years ago, has rapidly increased, and is abundant on the marshes and lagoons of the Hambantota District, where it breeds freely. I have also found it resident on some of the larger tanks in the North-Central Province.

This sub-species occurs as a resident, or partial migrant throughout India and Burma. It is the Eastern race of the common English Moorhen which has a wide range in Europe.

*Habits*.—Found on reedy tanks and marshes, often in the water, being a good swimmer. In Ceylon I have always found the nest to be a fairly thick platform of rushes, &c., about 6 to 8 inches across, wedged in among the stems of rushes growing in shallow water. The breeding season is about March, and again in July. Eggs vary from five to nine in number; oval slightly pointed at one end; ground colour drab, or brownish stone, sparingly blotched, or spotted with chocolate, or reddish brown, and a few paler purplish markings. Average measurements 1.62 by 1.16.

251. *GALLICREX CINEREA**The Water-Cock*

*Wil-kukulā*, Sinhalese; *tannir-kōli*, Tamil.

*Fulica cinerea* Gmel. S.N. i. p. 702 (1789) (China); *Gallix cinerea*, Legge p. 791; Oates and Blan. Vol. IV. p. 176.

*Description*.—Males in breeding plumage almost uniformly slaty black, more or less tinged with gray on the head, neck, and lower parts,

and generally with a little white on the abdomen ; back and wings blackish brown.

Out of the breeding season males assume the same plumage as females, which have the upper parts dark brown, with paler brown edges to the feathers. except on the crown; lower parts light brown, with fine, wavy, dark brown bars.

In young birds the barring on the lower parts is less distinct, and sometimes absent.

Bill and frontal shield, which is pointed behind, red in males ; in the breeding season the shield of the male is lengthened into a horn ; legs red ; iris red . Females have yellowish bills, dusky green legs, and brown irides.

Length : Males, 16·5 ; wing 8·5 ; tail 3 ; tarsus 3 ; bill from gape 1·55. Females, length 14 ; wing 7·0 ; tail 2·8 ; tarsus 2·6 ; bill from gape 1·4.

*Distribution*.—Found locally in marshy ground throughout the low-country. Common in the damper plains of India and Burma, and extends through South-eastern Asia to Java, the Philippines, and Japan.

*Habits*.—A long-legged, long-toed Rail, rather nocturnal in its habits, and keeping to cover in the thick grass of swamps and wet paddy fields. Mainly a vegetarian, and very good to eat. The nest is the usual large pile of grass among reeds, or on floating vegetation. The breeding season is said to be in July, or August. The eggs rather resemble those of the White-breasted Water-Hen, but are browner and larger, averaging about 1·7 by 1·27.

## 252. PORPHYRIO POLIOCEPHALUS POLIOCEPHALUS

### The Indian Purple Coot

*Kittalā, kittā*, Sinhalese; *kanan-kōlī*, Tamil.

*Gallinula poliocephala* Lath. Ind. Orn. Suppl. p. 68 (1801) (India); *Porphyrio poliocephalus*, Legge p. 795 ; Oates & Blan. Vol. IV. p. 178.

*Description*.—General colour of upper plumage, flanks and abdomen purplish blue ; head and face grayish ; wings and chest greenish blue ; under tail coverts white ; unexposed portion of wing and tail feathers black.

The bill is stout, the nostrils rounded and not situated in a groove, the frontal shield is square behind; both bill and shield bright red ; iris red ; legs fleshy red.

Length 17 ; wing 10 ; tail 3·6 ; tarsus 3·4 ; bill from gape 1·5.

*Distribution*.—Numerous on the brackish lagoons and fresh-water swamps of the south-east Coast, and found locally inland on large, swampy tanks. Occurs throughout India, Burma, and Siam in suitable situations.

*Habits*.—A conspicuous marsh bird with its bright blue plumage. Rather heavier in build than most Rails, with longish legs and bony toes. The flight is awkward, and in flying the legs are extended at full length behind the bird. It often swarms in masses of tangled rushes, and when flushed takes fairly readily to wing. In the Southern Province it breeds freely about February, and again in July. The nest varies from a large structure of rushes, &c., wedged in bulrush thickets, to quite a moderate pad of grass on grassy islets, or among floating vegetation. The eggs, four to eight in number, rather resemble larger editions of those laid by the Indian Moorhen, being stone colour, with fairly bold spots of reddish brown and paler spots of grayish purple. Average size 1·98 by 1·38.

[*Note*.—The Coot, *Fulica atra atra*, a widely distributed member of the family, has not yet been recorded authentically from Ceylon, but a good lookout should be kept for it as there are rumours of its occurrence.

The species may easily be distinguished by its slaty black plumage, white bill and shield, and from the fact that the toes are furnished with lobed fringes. It is slightly smaller and shorter in the leg than the Purple Coot. Length 16; wing 8·5; tail 2·25; tarsus 2·25; bill from gape 1·4.]

## Order XV. LIMICOLAE

### *The Waders*

The members of this large Order, as their name implies, are mainly birds of the seashore, of sandy wastes, or of marshes.

The formation of the legs and feet is usually adapted for running and wading. The birds seldom perch, and the hind toe in consequence is generally minute and often wanting. The tarsus in most cases is comparatively lengthy, and not only it, but also the lower half of the tibia is naked. The toes are seldom conspicuously webbed, but most species can swim well. Many of the birds are migratory, and the flight of almost all is strong, the wing quills being well developed. The bill shows great diversity. It may be long and straight like the Snipe's, Pigeon-shaped as in the Plover, curve like that of the Avocet, or down like the Curlew's. It is, however, generally slender, with the nostril carried in a lateral groove. As regards nidification, the eggs are nearly always laid on the ground, with a scanty nest lining, or none at all. The young when hatched are covered with down, and can run about forthwith.

The Indian members of the Order are divided into six Families, one of which, *Charadriidae*, is well represented, comprising, as it does, the Plovers, Avocets, Sandpipers, and Snipes. The others are small, and include groups of birds which—though their internal structure shows them to be nearly related to the Plovers—often differ considerably in outward appearance, and in several cases point to affinities with other Orders. The *Burhinidae* (Stone Plovers), resemble the Bustards; while the Crab Plover, sole representative of the *Dromadidae*, is distinctly related to the Gulls. The remaining three Families are the *Glareolidae* (Coursers and Swallow Plovers), the *Jacaniidae* (Jacanas), and the *Rostratulidae* (Painted Snipes). This last Family in outward appearance greatly resembles the Snipes. The habits however are distinctly Ralline, and the Family should probably, as Mr. Stuart Baker states, be removed to a position leading from the Rails to the Snipes and their relations.

## Family BURHINIDAE

*Stone Plovers*

A small Family, limited in Ceylon to two species placed in separate genera. They are rather bigger than the ordinary run of Plovers, with heavier and stouter bills. The plumage is harsh and stiff. The hind toe is absent; the three front toes are short and stout, and united by a slight web at the base. The eyes are very large, and the birds are rather nocturnal in their habits.

There is no nest, two eggs as a rule being laid on the bare ground.

*Key to Ceylon Burhinidae*

A.—Length 16 inches. Bill from gape 2 inches in length, and moderately stout.

*Burhinus oedicnemus indicus* (Indian Stone Curlew).

B.—Length 20 inches. Bill from gape over 3 inches, and large and heavy.

*Esacus recurvirostris* (Great Stone Plover).

**253. BURHINUS OEDICNEMUS INDICUS**

The Indian Stone-Curlew (Pl. XV. Fig. 2.)

*Gōlu-kiraluwā, gōlu-kiralā*, Sinhalese; *mussal-kannādi*, Tamil. *Oedicnemus indicus* Salva. Att. Soc. Ital. Sci. Nat. vii. p. 381. (1866) (India); *Oedicnemus scolopax*, Legge p. 969; Oates & Blan. Vol. IV. p. 204.

*Description*.—Upper plumage sandy brown, or buff, the feathers with blackish shaft-stripes; lores, eyebrow, and a stripe below the eye creamy white; a dark streak from the bill across the lower cheek to the nape, another narrower streak in front of and beneath the eye to the ear coverts; two white bars across the wing coverts, and between them a band of brownish black; wing quills blackish brown; a white patch on each of the first two or three primaries; tips and roots of the later primaries white, as are the basal parts of the inner webs of the earlier secondaries; tail ashy brown with a bold, black and a white bar on all but the two middle feathers; lower parts white to rufous with blackish shaft-stripes on the neck, upper breast, and sides of body. Young birds have irregular, darker bandings on wing coverts and tail feathers.

Bill black at the end, yellow at the base; iris large, and bright yellow; legs and feet greenish yellow.

Length 16; wing 8.5; tail 4.5; tarsus 3.1; bill from gape 2.0.

*Distribution*.—Thinly, though fairly widely distributed round the

sandy coasts of the dry zone, and occasionally found inland on sun-baked, fallow stretches of paddy land. This sub-species occurs throughout India and Burma in suitable localities.

*Habits*.—A wary bird, fond of dry, open ground. It has the same trick as the Bustard of lying flat on the ground to escape detection. The wild, shrill cry is rather like that of the Curlew. The breeding season is from April to about August. Two, or occasionally, three eggs are laid in a slight depression of the ground, as a rule in the shade of a plant, or small shrub. The ground colour is buff with blackish clouds and blotches, and at times a few, fainter, purplish markings.

Average size of 12 Ceylon eggs 1·90 by 1·34.

## 254. ESACUS RECURVIROSTRIS

### The Great Stone-Plover

*Gōlu-kiraluwā, gōlu-kiralā*, Sinhalese ; *mussal-kannādi*, Tamil.  
*Oedienemus recurvirostris* Cuv. Regne. Anim. i. p. 500 (1829) (India) ;  
*Esacus recurvirostris*, Legge p. 974 ; Oates & Blan. Vol. IV. p. 205.

*Description*.—Upper parts ashy brown, with darker, narrow shaft-stripes ; base of forehead, lores, orbits, and a stripe behind the eye white ; the last-mentioned white stripe is bordered above and below by a black band, which runs round the front of the eye ; another dark stripe from the gape of the bill down the cheeks ; greater and median wing coverts lighter than the back and with a pearly tinge ; on the lesser wing coverts a dark brown band edged with white ; wing quills blackish, with a white band on the first three primaries ; sixth primary with some white on the inner web, and later primaries white banded with black ; all tail feathers, except the middle pair, barred with white, and black at the tip ; under plumage whitish, more or less tinged with gray on the fore-neck and upper breast ; under tail coverts tinged with rufous.

Bill powerful and straight along the ridge, yellow at the base, remainder black ; iris very large and yellow ; legs and feet pale yellowish green.

Length 20 ; wing 10·5 ; tail 4·75 ; tarsus 3·25 ; bill from gape 3·5.

*Distribution*.—Confined to dry, sandy stretches near the shore, or round coastal lagoons ; may occasionally be found inland round the larger tanks, if they have gravelly margins, or a small, rocky island in the middle. Found throughout India and Burma on the banks of large rivers.

*Habits*.—The birds are usually met with in pairs, which keep almost entirely to one beat. Like the last species, it is semi-nocturnal. In India this Stone Plover almost always haunts the banks of rivers. In

Ceylon it is found mainly on the seashore, and would thus seem in its habits to approach the allied *Orthorhamphus magnirostris*, a littoral species which ranges from Australia to the Andamans.

The breeding season is from April to August, two eggs being laid in a slight hollow in the sand, or among stones. In shape these are slightly pointed ovals; stone coloured, scrawled and blotched with umber, the larger blotches being partly overlaid with black. The average size of four Ceylon eggs is 2.29 by 1.67.

### Family DROMADIDAE

#### *Crab-Plover*

The Family is restricted to a single genus and species occurring on the shores of the Indian Ocean. In outward appearance and habits this bird shows a strong resemblance to the Gulls. The hind toe is fairly well developed; the front toes are long and noticeably webbed; the bill is strong, stout, and longer than the head; the nostrils are oval and placed, not in a groove, but in a small depression. The nidification is unlike that of any other member of the Order, a single white egg being laid in a burrow.

### 255. DROMAS ARDEOLA

#### *The Crab-Plover*

Vernacular names not recorded.

*Dromas ardeola* Paykull, K. Svensk. Vet. Ak. Hand. l. xxvi. p. 182. (1845) (India); Legge p. 991; Oates & Blan. Vol. IV. p. 208.

*Description*.—General colour white pied with black, the black being confined to the back, the elongated feathers of the mantle, the greater wing coverts, and the major portion of the wing quills. There is also a small, black speck in front of and behind each eye.

Young birds are gray on the upper parts and streaked with black on the head and nape.

Bill black; iris dark brown; legs and feet grayish blue; claws black.

Length 16; wing 8.25; tail 2.8; tarsus 3.75; bill from gape 2.75.

*Distribution*.—Found in small numbers, chiefly on the north coast from Mannar to Trincomalee. Its range extends from the shores of East Africa to those of the Bay of Bengal.

*Habits*.—A curious bird, confined to the sea coast, or shores of salt lakes; as a rule gregarious. Crabs are its main food. The flight and



gait are those of a Plover. Breeds about the end of May. The bird digs in a sandy beach a long, curved burrow, in which it lays a solitary, white egg measuring about 2.50 by 1.75.

### Family GLAREOLIDAE

#### *Coursers and Swallow Plovers*

A Family confined to the Old World. In it—with the exception of a genus which does not occur within Indian limits—the nostrils are not pierced through the bill, as in all the other groups of the Order, but have a partition between them.

The bill is slight and not grooved. None of the forms are large. The eggs resemble those of Plovers, but are of a more dumpy oval and less pointed at the narrow end. There are two well-marked Sub-families.

(a) The Coursers (*Cursoriinae*).

(b) The Swallow Plovers (*Glareolinae*).

### Sub-family CURSORIINAE

#### *Coursers*

Represented in Ceylon by a single species. The Coursers are great runners, and frequent dry plains. The tarsus is longish, and there is no hind toe. In outward appearance they are not unlike small Lapwings, but the bill is pointed, and not swollen at the tip.

#### 256. CURSORIUS COROMANDELICUS

##### *The Indian Courser*

*Weli-kiralā*, Sinhalese ; *āl-kāti*, Tamil.

*Charadrius coromandelicus* Gmel. S.N. i. p. 692, (1788) (Coromandel Coast) ; *Cursorius coromandelicus*, Legge p. 977 ; Oates & Blan. Vol. IV. p. 210

*Description*—Upper plumage in general grayish brown ; forehead and crown rich chestnut, the long crown feathers partly concealing a black patch on the nape ; a broad, white stripe runs from near the bill over each eye, meeting at the nape ; this is bordered below by a black band running through the eye ; chin white, passing into rufous on the

throat ; upper neck, fore-neck all round and breast rufous, deepening into chestnut on the lower breast ; centre of the abdomen black ; the lower abdomen, flanks, upper and under tail coverts white ; the sides of the body and axillaries the same gray brown as the back ; primary coverts and primary quills black ; secondaries grayish towards the ends and tipped with white ; the tail, except the two middle feathers, is banded with black and tipped with white, the white increasing towards the sides of the tail, the outer feathers being practically all white.

Females are slightly larger than males.

Young birds are mottled all over above with brown and buff, with some spots as well on the under plumage.

Bill blackish, moderately long, slender, and slightly curved ; iris dark brown ; legs and feet white, or whitish yellow ; claws black.

Length 9 ; wing 6 ; tail 2.25 ; tarsus 2.1 ; bill from gape 1.1.

*Distribution* —The north-west coast, from the Jaffna Peninsula to the boundary of the Puttalam District. Occurs through a great part of the Indian Peninsula, except in the north-west.

*Habits*.—In Ceylon it is restricted to sandy wastes and bare pasturages near the sea. In India it is also found in open, sandy, or stony plains inland. It generally appears in small, scattered troops running hither and thither in search of insects. It breeds about March, and probably later in the year, laying on the bare ground two, or sometimes, three eggs, broad oval in shape, and stone coloured, with dull black scrawls, mottlings and blotches. Average size about 1.20 by .97.

#### Sub-family GLAREOLINÆ

#### *Pratincoles, or Swallow Plovers*

A small group of birds, which in outward build and flight much resemble Swallows. The wings are long, reaching when closed well beyond the tail. The bill is short and curved, and the gape wide. The legs are short ; the hind toe is fairly well developed, and there is a trace of webbing between the middle and outer toes. The birds are crepuscular in their habits, hawking for flying insects in the evening and early morning, and resting on the ground during the day.

Two species are found in Ceylon.

## Key to Ceylon Glareolinae

A.—Tail deeply forked ; wing over 7 inches.

*Glareola maldivarum* (Large Indian Swallow-Plover).

B.—Tail only slightly forked ; wing under 6 inches.

*G. lactea* (Small Indian Swallow-Plover).

## 257. GLAREOLA MALDIVARUM

## The Large Indian Swallow-Plover

Vernacular names not recorded.

*Glareola maldivarum* Forster, Fauna Ind. p. 11 (1795) (Maldives) ; *G. orientalis*, Legge p. 980 ; Oates & Blan. Vol. IV. p. 214.

*Description*.—Upper plumage brown to brownish olive, tinged with rufous on the back of the neck ; wing quills blackish brown, the primaries almost black, the tertiaries lighter ; shaft of the first primary whitish ; upper tail coverts white ; tail feathers white at the base with broad, brown tips ; lores dusky brown ; chin and throat rufous buff, ringed round by a narrow, black band, edged with white on the inside, which runs from the gape ; upper breast olive brown, passing through rufous on the chest into sullied white on the abdomen and lower tail coverts ; the greater portion of the wing-lining and axillaries is chestnut.

Young birds have no gorget, and are mottled brown and buff above. The gorget is not assumed until the upper plumage has lost its mottling.

Bill black, vermilion round the gape ; iris dark brown ; a ring of white skin round the orbit ; legs and feet reddish brown.

Length 9.5 ; wing 7.4 ; tail 3 ; depth of fork 1.0 ; tarsus 1.3 ; bill from gape 1.0.

*Distribution*.—Resident in a few scattered colonies round large tanks, such as Minneri and Kanthalai, and on the shores of lagoons in the Hambantota District and on the north-west coast. Locally distributed in India and Burma, ranging north-east through China, and south-east to Australia.

*Habits*.—Already described in my remarks on the Sub-family. I have taken the eggs twice, both times in the same locality in the Hambantota District, once in April and once in July. In each case the two eggs were laid on a small, disintegrated patch of dry cowdung in dry, sandy pasture near a lagoon. They are dumpy, slightly pointed ovals, rather velvety in appearance. The ground colour is drab, fairly evenly blotched with brown black markings over fainter, washy splotches of grayish purple. Average size 1.20 by .93.

## 258. GLAREOLA LACTEA

## The Small Indian Swallow-Plover

Vernacular names not recorded.

*Glareola lactea* Temm. Man. d' Orn. ed. 2. ii. p. 503 (1820) (Bengal); Legge p. 984; Oates & Blan. Vol. IV. p. 216.

*Description*.—Upper plumage pale ashy gray, darker on the forehead; primary quills and wing-lining black; there is some white on all the primaries, except the first two, the white increasing on the secondaries, which are black only towards the tip; upper tail coverts white; tail white with a broad, black border, tipped on all but the two central feathers with white; chin whitish; throat, foreneck, and upper breast ashy gray, tinged more or less with rufous; abdomen and under tail coverts white.

Bill black, red at the base, and yellowish round the gape; iris dark brown; a creamy orbital ring; legs and feet brownish.

Length 6·5; wing 5·9; tail 2·0; tarsus ·75; bill from gape ·75.

*Distribution*.—Fairly common near Hambantota, and found in a few other localities in the dry zone by the coast, or inland round some of the larger tanks. A resident in suitable localities on the plains of India east of the Indus, and in Burma.

*Habits*.—Those of the genus. In Ceylon this species haunts sand banks near the sea, or the sandy shores of inland tanks; in India it is mainly found on the sandy beds of large rivers. With us it breeds about April. Two eggs from Minneri were laid on bare, gravelly sand under the shade of a small plant. Clutches in India vary from 2 to 4. The ground colour is pale brownish buff, rather sparingly speckled with pale gray purple and light umber. The average of my two Ceylon eggs is 1·02 by ·81.

## Family JACANIDAE

*Jacanas*

A Family with only one representative in Ceylon, though other genera are met with all over the tropics. They are marsh birds, distinguishable by their feet; all the toes, including the hind toe, being enormously long, and furnished with equally long claws, thus enabling the bird to run easily over floating water leaves. The bill is Plover-like. In the genus *Hydrophasianus*, of which our Water-Pheasant is the sole species, the first wing quill is elongated into a curious, little, lance-shaped tip connected with the rest of the feather by a slender and flexible shaft.

The shape of the fourth quill is also peculiar, running into a point. The genus is further noticeable from the fact that in the breeding season both sexes assume a nuptial plumage with longer tail feathers, and develop a strong, sharp spur on the bend of the wing.

## 259. HYDROPHASIANUS CHIRURGUS

### The Pheasant-tailed Jacana

*Pān-kukulā, nyowwā*, Sinhalese ; *mīwa, manal-purā* (E.P.), Tamil.

*Tringa chirurgus* Scop. del. Flor. et Faun. Insubr. ii. p. 92 (1786) (New Guinea); *Hydrophasianus chirurgus*, Legge p. 914; Oates & Blan. Vol. IV. p. 219.

*Description*.—Winter: Upper plumage in general brown, darker on the lower back and rump, and speckled with white on the forehead and crown; a white stripe on the lores and above the eye; behind the eye this stripe becomes a broadening band of yellowish brown running down the side of the neck; below this is a black stripe running from each side of the gape and meeting in a broad band across the breast; remainder of the lower parts and the outer tail feathers white; wing coverts largely white, the inner, median, and greater coverts being barred with brown and buff; first primary black; second with a white patch on the inner web near the root; the white gradually increases on the next quills, the secondaries being entirely white.

Breeding plumage: Head, throat, and foreneck white; the back of the neck glistening golden yellow, bordered on each side by a black stripe, and in front by a black patch on the nape; back, scapulars, tertiaries, and lower plumage from the neck down chocolate brown; tail, upper tail coverts, and rump black; wing coverts and wing-lining white; wing quills remain as in winter. The tail increases in length from about 4 inches to nearly a foot.

Females are rather larger than males.

Young birds are like adults in winter plumage, but have a rufous head and rufous edges to the feathers of the upper parts; the gorget is wanting, the upper breast being speckled brown.

In the breeding season the bill is bluish, the iris brown, and the legs and feet plumbeous black; in winter the bill is dark brown, paler at the tip, the iris yellow, and the legs greenish.

Length of male in winter 12, in summer 18; wing 7·8; tail in winter 3·75, in summer 10; tarsus 2; bill from gape 1·3. Females: length in winter 15, in summer 21; wing 9.

*Distribution*.—Common throughout the low-country wherever there are suitable sheets of water. The species extends all over India and

Burma, eastwards to South China and the Philippines, and southwards to New Guinea.

*Habits*.—Frequent tanks and still sheets of water covered with lotus leaves, over which it runs rapidly, feeding on insects, crustaceans, and vegetable matter. The cry rather resembles the mewing of a cat. The breeding season is from about March to June. The nest is generally a blob of floating waterweed, almost awash, but sometimes the eggs are laid on bare, floating lotus leaves. They are four in number, peg-top shaped, and in colour a glossy bronze, which becomes lighter as incubation proceeds. Average measurement about 1.44 by 1.06.

#### Family CHARADRIIDAE

##### *Plovers, Sandpipers, Snipes, &c.*

A large Family, comparatively well represented in Ceylon. The forms vary greatly in size, in length of bill and of limb. The tail is always short, the hind toe short, or absent, and the wing usually strong. The gape of the mouth is peculiarly narrow, never extending further back than the feathering of the forehead. All of them are ground birds, only a few species ever perching, and those but occasionally. With one exception, a migrant breeding in cold, northern climates, the eggs are laid on the ground with little, or no nest lining. The eggs are four in number, peg-top shaped and spotted; the ground colour being drab, or some approximate tint.

The Family as classified by Blanford falls into four fairly well-marked Sub-families, which may be distinguished as follows:—

A.—Bill short and, with one exception, pigeon-shaped; the groove from the nostrils extending for not more than half the length of the bill.

*Charadriinae* (Plovers).

B.—Bill long, plumage pied.

*Haematopodinae* (Stilts, Avocets, &c.).

C.—Bill variable; nasal groove extending for more than half the length of the bill; plumage not pied, a distinct summer and winter dress.

*Totantinae* (Curlews, Sandpipers, &c.).

D.—Bill long; eyes large, and placed far back; toes without a trace of web.

*Scolopacinae* (Snipes).

## Sub-family CHARADRIINAE

*Plovers*

Plovers are birds not so much of the marsh, as of grassy, or sandy places. They are often found near water, but not, as a rule, actually in swamps. Many of the smaller species haunt the seashore. The genus *Arenaria* (Turnstone) stands apart, in having the bill straight and pointed, whereas in all the true Plovers the bill is shaped like that of a Pigeon, with the tip of the upper mandible swollen and the ridge curved at the end.

We have one form of Turnstone in Ceylon, while the true Plovers fall into three groups: the mainly resident Lapwings, with broad wings and a flapping flight; the migratory Golden Plover and its allies, with a speckled upper plumage; and the smaller Sand-Plovers, of which some species migrate, while others remain with us all the year.

Twelve members of the Sub-family come on to the Ceylon list. Six small Sand Plovers are referable to the genus *Charadrius*, the remaining six species are divided among as many genera.

*Key to Ceylon Charadriinae*

I.—Bill straight, short, and conical, no swelling on tip.

(a) Size small; length 8·5 inches.

*Arenaria interpres interpres* (The Turnstone).

II.—Bill pigeon-shaped, slightly swollen at tip.

A.—Wings broad; upper plumage not speckled.

(a) A red wattle in front of eye.

*Lobivanellus indicus indicus* (Indian Red-wattled Lapwing).

(b) A yellow wattle in front of eye.

*Sarcophorus malabaricus* (Yellow-wattled Lapwing).

(c) No wattle.

*Chettusia gregaria* (Sociable Lapwing).

B.—Upper plumage speckled; wings sharp and pointed.

(a) A small hind toe; length 12 inches.

*Squatarola squatarola hypomelana* (Eastern Gray Plover).

(b) No hind toe; length 9·5 inches.

*Pluvialis dominicus fulvus* (Eastern Golden Plover).

C.—Small forms under 9 inches; upper plumage not speckled; Wings sharp and pointed.

(a) No white ring round neck.

- (1) Wing 5·5 inches ; bill from gape 1 inch.  
or over.  
*Charadrius leschenaulti* (Large Sand-Plover).
- (2) Wing 5 inches ; bill from gape ·75 inch.  
*Ch. mongolus atrifrons* (Central Asian  
Lesser Sand-Plover).
- (b) Ring round neck white, bordered behind with black.
- (1) Size smaller, resident ; wing about 4·25.  
*Ch. dubius jerdoni*. (Jerdon's Little  
Ringed-Plover).
- (2) Size larger, migrant ; wing about 4·50.  
*Ch. dubius curonicus* (European Little  
Ringed-Plover).
- (c) Ring round neck plain white.
- (1) Size larger, migrant ; wing about 4·25 ;  
bill from gape ·8 ;  
*Ch. alexandrinus alexandrinus* (Kentish  
Plover).
- (2) Size smaller, resident ; wing about 4·1 ;  
bill from gape ·7.  
*Ch. alexandrinus seebohmii* (Indian Kentish-Plover).

## 260. ARENARIA INTERPRES INTERPRES

### The Turnstone

*Olēyiyā*, Sinhalese ; *kōtān*, Tamil.

*Tringa interpres* Linn. S. N. i. p. 148 (1758) (Sweden) ; *Streptilas interpres*. Legge p. 900 ; Oates & Blan. Vol. IV. p. 223.

*Description*.—Winter : Top and sides of head brown with darker streaks ; upper back, scapulars, tertiaries, and wing coverts dark brown with slightly paler edges, some of the under scapulars being partly, or wholly white ; lower back, rump, and longer tail coverts white ; shorter tail coverts dark brown ; wing quills blackish brown with white shafts, and some white on the inner webs ; some of the later secondaries almost, or wholly white ; tail white at the base, the outer half brown with white edges to all but the central pair of feathers ; the outer pair of feathers almost wholly white ; foreneck and sides of breast brown ; the rest of the lower parts and the wing-lining white.

Summer : Head, chin, and throat white, with black streaks on the crown ; a black band from eye to eye across the forehead and a black



patch below the eye; back, scapulars, tertiaries, and wing coverts mingled black and chestnut; a partial collar on the side of the neck; the foreneck, breast, and sides are black; remainder of lower parts white.

Bill black; iris brown; legs and feet orange red; claws blackish.

Length 8.5; wing 6.2; tail 2.5; tarsus 1; bill from gape 1.

*Distribution*.—A migrant during the north-east monsoon, fairly common on the coast from Jaffna to Mannar; rarer on the east coast, but met with as far south as Hambantota; a mere straggler to the west coast south of Puttalam.

Found almost all over Europe and Asia, breeding in high northern latitudes and wintering in the south; not, as a rule, met with away from the coast.

*Habits*.—Occurs on sandy flats by the sea, or round lagoons, hunting underneath stones and shells for insects, and generally going about in small parties. By the time the birds leave the island, about the end of April, many have almost completely assumed summer plumage.

## 261. LOBIVANELLUS INDICUS INDICUS

### The Indian Red-Wattled Lapwing

*Kiraluwā, kiralā*, Sinhalese.; *āl-kāti*, Tamil.

*Tringa indica* Bodd. Pl. Enl. p. 50 (1783) (Goa); *Lobivanellus indicus*, Legge p. 962; *Sarcogrammus indicus*, Oates & Blan. Vol. IV. p. 224.

*Description*.—General colour above light brown, slightly glossed with bronze green and lilac red, the latter colour strongest on the wing coverts; head, neck, and upper breast black with a broad, white band running from the eye down the side of the neck to join the white plumage of the lower parts, sides, and flanks; primary coverts and wing quills black with a white bar across the wing, formed by the tips of the greater secondary coverts and the bases of the secondary quills, one or two of the later secondaries being entirely white; rump and upper tail coverts white; tail white, the central feathers with the outer half brown, and all the feathers with a broad, black cross-band near the tip.

Young birds are brown, not black, on the crown and upper breast, and grayish white on the sides of the face and throat.

Bill red at the base, black at the tip; eyelids and wattle lake red; iris reddish brown; legs yellow.

Length 13; wing 8.5; tail 4.25; tarsus 3; bill from gape 1.4.

*Distribution*.—Abundant all over the low-country, except in very dry districts, where its place is largely taken by the next species. Not found in Burma, or Upper Assam, but ranges through the rest of India.

*Habits*.—Common on the open ground round every village, tank, about the edges of paddy fields, and on grassy land near water. Its

cry of "Did-he-do-it" must be familiar to every one. Generally seen in pairs. Breeds during dry weather from April till about August, laying four eggs on the bare ground. Their colour is yellowish stone with blotches of deep brown, or black, and under markings of paler purple gray. Average size 1.68 by 1.20.

## 262. SARCIOPHORUS MALABARICUS

The Yellow-wattled Lapwing (Pl. XV. Fig. 3.)

*Kiraluwā*, *kiralā*, Sinhalese; *āl-kāti*, Tamil.

*Charadrius malabaricus* Bodd. Pl. Enl. p. 53. (1783) (Malabar Coast); *Lobipluvia malabarica*, Legge p. 966; *Sarciophorus malabaricus*, Oates & Blan. Vol. IV. p. 226.

*Description*.—General colour of upper parts, with sides of head, neck all round, and upper breast, light brown; crown and nape black, bordered below by a white stripe round the nape from eye to eye; chin black; lower parts from breast downwards, with the sides, flanks, and wing-lining, white; quills and primary coverts of wing blackish brown; the primaries white on the inner web near the base; outer secondaries white at the base, the white increasing towards the later secondaries, which are wholly white; secondary coverts tipped white; tail white; the middle feathers brown on the outer half; the whole crossed by a black band towards the tip, the band being broad in the middle, and tending to disappear on the outer feathers.

Young birds have paler bands on the brown upper parts and, at first, no black on the head, which becomes more and more mottled with black as maturity approaches.

Bill yellow at base, black at tip; eyelid and wattle lemon yellow; iris silver gray, or light yellow; legs yellow.

Length 10.5; wing 7.75; tail 3; tarsus 2.4; bill from gape 1.25.

*Distribution*.—Fairly plentiful in the dry, coast zone from Jaffna to Puttalam; rare on the east, but commoner round Hambantota. Resident on dry plains throughout India, except in the Western Punjab; unknown in Burma.

*Habits*.—Essentially a bird of dry, sandy wastes and parched fields. In Ceylon it never goes far inland. The cry is a plaintive "pee-wit." It breeds in June and July, laying on the bare ground four pyriform eggs of buff, or pale stone colour, blotched with dark brown and pale inky purple. They are considerably smaller than those of the last species, averaging 1.45 by 1.07.

## 263. CHETTUSIA GREGARIA

## The Sociable Lapwing

Vernacular names not recorded.

*Charadrius gregarius* Pall. Reise. Russ. Reichs. i. p. 456. (1771) (Volga); not in Legge; *Chettusia gregaria*, Oates & Blan. Vol. IV. p. 231.

*Description*.—General tone of upper plumage light ashy brown, darker on the wing coverts and on centre of lower back; crown and nape black; forehead and a stripe running over the eye round the nape white; below this a black stripe passes through the eye to the ear coverts; Primary coverts and primaries black; a little white on the bases of all the quills and on the inner border of the last primary; secondaries and outer part of the greater secondary coverts white; chin white, shading through buff on the throat and sides of the face into ashy brown on the neck and breast; abdomen black with a patch of chestnut behind; wing-lining, flanks, vent, lower and upper tail coverts, and greater part of tail white; a black band across the tail near the tip, broad in the centre and disappearing on the outer feathers.

In immature birds the crown is dark brown often streaked with black; forehead and band round the nape buff instead of white; the brown of the upper plumage is darker, and the feathers are edged with rufous buff; breast mottled brown; remainder of lower parts white.

Bill, legs, and feet black; iris dark brown.

Length 12; wing 8; tail 3.5; tarsus 2.4; bill from gape 1.2.

*Distribution*.—An occasional winter visitor in small numbers to Ceylon; a few birds turn up nearly every year on the racecourse at Colombo. It is a migrant, breeding in Eastern Europe and Central Asia, and wintering chiefly in North Africa and North-west India.

Most Indian specimens are in immature plumage.

*Habits*.—Occurs in small flocks, and is generally found in open country.

## 264. SQUATAROLA SQUATAROLA HYPOMELANA

## The Eastern Gray Plover

*Olēyiyā*, Sinhalese; *kōlān*, Tamil.

*Charadrius hypomelanus* Pall. Reise. Russ. Reichs. iii. p. 609 (1776) (Siberia); *Squatarola helvetica*, Legge p. 929; Oates & Blan. Vol. IV. p. 236.

*Description*.—Winter: Dark brown above, with pale edgings to the feathers; forehead, lores, sides of head, and neck dirty white streaked with brown; wing coverts edged and notched with pearly white; primary coverts and wing quills blackish brown, with some white on the webs and

shafts; upper tail coverts and tail white with darker bars; the barring more marked on the tail; lower parts white, or whitish, streaked with brown on the foreneck and breast.

Summer: The lower parts become black from the chin to the upper abdomen; lower abdomen, flanks, thighs, and lower tail coverts pure white; upper parts brown black, marked and barred with pure white.

Immature birds are spotted with golden buff above, like a Golden Plover.

Bill black; iris dark hazel; legs and feet gray black.

Length 12; wing 8; tail 2.9; tarsus 1.8; bill from gape 1.3.

*Distribution*.—An occasional and irregular winter visitor, specimens having been obtained at various points on the coast from Jaffna to Colombo and in the Hambantota District. Breeds in the far north, wintering chiefly near the sea, in India and Burma.

*Habits*.—Generally found in small flocks frequenting sandy beaches, tidal flats, and the shores of lagoons. In other respects the habits are similar to those of the Golden Plover.

## 265. *PLUVIALIS DOMINICUS FULVUS*

### The Eastern Golden Plover

*Olēyiyā, rana-watuwā*, Sinhalese; *kōtān*, Tamil.

*Charadrius fulvus* Gmel. S. N. i. 2. p. 687 (1789) (Tahiti); Legge p. 934; Oates & Blan. Vol. IV. p. 234.

*Description*.—Winter: Upper plumage dark brown, or blackish, each feather with yellow spots, which are whitish on the wing coverts; forehead and an indistinct streak above the eye fulvous, or whitish; sides of head and neck fulvous with brown streaks; primary coverts and wing quills dark brown with indistinct, white edges on some feathers; tail dark brown mottled with yellow, or whitish; under parts sullied white, or dull brown, darker and streaked with brown on the breast; wing-lining and axillaries gray brown.

Summer: All lower parts turn black, except the wing-lining and axillaries, which do not change; the brown of the upper plumage becomes darker, and the yellow spots brighter; the forehead and the streak over the eye become pure white.

Bill black; iris dark brown; legs and feet leaden black.

Length 9.5; wing 6.5; tail 2.4; tarsus 1.7; bill from gape 1.1.

*Distribution*.—Common in suitable places throughout the low-country from the end of August to the end of April. A migrant, breeding in Siberia and wintering over all Southern Asia and as far south as Australia.

*Habits*.—Generally found in flocks on bare fields, grassy land round tanks, or sandy pastures near the coast. During the wet weather the

birds wander about a good deal. Some specimens on their first arrival in the Island bear traces of the summer plumage, and most birds before they leave have a large amount of black on the breast.

## 266. CHARADRIUS LESCHENAUTI

### The Large Sand-Plover

*Olēyiyā*, Sinhalese; *kōtān*, Tamil.

*Charadrius leschenaulti* Less. Dict. Sci. Nat. xlii. p. 36 (1826) (Pondicherry); *Aegialitis geoffroyi*, Legge p. 939; Oates & Blan Vol. IV. p. 237.

*Description*.—Winter: Upper plumage brown, the feathers with slightly paler edges and narrow, darker shaft-stripes; the forehead and eyebrow white, or whitish; a dark brown band from the lores passes under the eye to the ear coverts; the greater wing coverts with white tips; the primary coverts and wing quills brown, with a little white on the outer webs of the inner primaries and on the tips and shafts of the secondaries; lateral tail coverts edged with white; the tail feathers brown tipped with white, the outermost pair being almost entirely white; lower parts white, with a more or less perfect band of brown across the breast.

Summer: The upper plumage turns paler brown with a rufous tinge; the forehead is white below and black above; a broad, black stripe runs from the bill through the lores to the ear coverts; the crown, sides of neck, hind neck, and a band across the upper breast pale rufous.

Bill black; iris brown; legs and feet grayish green, gray, or yellowish black.

Length 8.5; wing 5.5; tail 2.2; tarsus 1.5; bill from gape 1.1.

*Distribution*.—A migrant found on the coast of the dry zone from Mannar round by Jaffna to Hambantota. Breeds in Japan and Eastern China, wintering on the shores of the Indian Ocean from South Africa to Australia.

*Habits*.—Frequents the seashore, tidal flats, and the sandy stretches round lagoons, often in company with the next species. Some immature birds in winter plumage remain with us through the year.

## 267. CHARADRIUS MONGOLUS ATRIFRONS

### The Central Asian Lesser Sand-Plover

*Olēyiyā*, Sinhalese; *kōtān*, Tamil.

*Charadrius atrifrons* Wagler, Isis 1829. p. 650 (Bengal); *Aegialitis mongolica*, Legge p. 943; Oates & Blan. Vol. IV. p. 238.

*Description*.—Very similar to the last species, but smaller and with a shorter bill.

In the winter plumage the upper surface is darker brown, and in summer the present sub-species has the forehead wholly black or with only a little white. The Chinese form has more white on the forehead and a brighter pectoral gorget.

Bill, iris, and feet as in *Ch. leschenaulti*.

Length 7.5 ; wing 5 ; tail 2 ; tarsus 1.2 ; bill from gape .75.

*Distribution*.—Plentiful all round the coast line of the dry zone during the north-east monsoon. Breeds in Central Asia ; winters round the shores of the Indian Ocean. Numbers of immature birds in winter plumage remain with us throughout the year. Some birds change into summer plumage before departure. A specimen taken in April shows the typical black forehead of this form.

*Habits*.—Like the last species, may be found on sandy, or muddy flats by the shore and round the margins of lagoons, often in large, scattered flocks.

## 268. CHARADRIUS DUBIUS JERDONI

### Jerdon's Little Ringed-Plover

*Punchi-olēyiyā*, Sinhalese ; *sinna-kōtān*, Tamil.

*Aegialitis jerdoni* Legge, P.Z.S. i. p. 125 (1881) (Ganges) ; Birds of Ceylon p. 956 ; *Aegialitis dubia*, Oates & Blan. Vol. IV. p. 241.

*Description*.—General colour, above, brown, darkest on the wings and tail, the wing quills and tip of the tail being almost black : the fore part of the crown, the sides of the head from the bill to the ear coverts and a thin line across the forehead at the base of the bill black ; the rest of the forehead, the chin, throat and a collar allround the neck white, behind this is a collar of black, broadest on the breast ; remainder of lower parts and wing-lining white ; later primaries and secondaries tipped with white, the white increasing on the later secondaries ; two outer tail feathers almost entirely white, the remaining feathers, with the exception of the central pair, tipped with white.

In young birds the marks on the head are buff and brown instead of black and white.

Bill black, the base of the lower mandible bright yellow in adults ; iris dark brown ; a naked, slightly corrugated, yellow ring round the eye ; legs and feet dusky yellow.

Length about 6.4 ; wing 4.25 or under ; tail 2.1 ; tarsus 1 ; bill from gape .55.

*Distribution*.—This is a small, resident form which is found in Ceylon and through most of India. With us it occurs sparingly round the coast of the dry zone, on the shores of the larger inland tanks in the North

of the Island, and on sand-banks in the lower reaches of the rivers of the dry zone.

*Habits*.—Sometimes seen away from water in dry, or sandy fields, but generally found on the sands of river-beds, the shores of tanks, or the sandy wastes round lagoons. The breeding season appears to be about June, and the nidification similar to that of the Indian Kentish Plover. The eggs are slightly smaller, Indian eggs averaging 1.14 by .84

## 269. CHARADRIUS DUBIUS CURONICUS

### The European Little Ringed-Plover

*Punchi-olēyiyā*, Sinhalese ; *sinna-kōtān*, Tamil.

*Charadrius curonicus* Gmel. S.N. i. 2. p. 692 (1789) (Curonia) ; *Aegialitis curonica*, Legge p. 952 ; *Ae. dubia*, Oates & Blan. Vol. IV. p. 241.

*Description*.—Similar to that of the last sub-species, only rather larger; the black, frontal line adjoining the base of the bill is wider; there is less yellow at the base of the lower mandible, while the orbital skin is less conspicuous and paler.

Length 7 ; wing 4.5 ; tail 2.5 ; tarsus 1 ; bill from gape .6.

*Distribution*.—This sub-species breeds in Europe and migrates in winter southwards and south-east as far as India and Ceylon. It appears to be confined mainly to the coast of the dry zone in the northern half of the Island.

*Habits*.—Much the same as those of the last sub-species.

## 270. CHARADRIUS ALEXANDRINUS ALEXANDRINUS

### The Kentish Plover

*Punchi-olēyiyā*, Sinhalese ; *sinna-kōtān*, Tamil.

*Charadrius alexandrinus* Linn. S.N. i p. 160 (1758 (Egypt) ; *Aegialitis cantiana*, Legge p. 947 ; *Ae. alexandrina*, Oates & Blan. Vol. IV. p. 240.

*Description*.—Winter. Upper plumage in general mud brown; forehead, eyebrow, a ring round the neck, and all the lower parts, with the wing-lining and axillaries, white; a brown patch on each side of the breast, extending sometimes nearly to the middle; lores and a stripe through the eye and round the nape a richer brown than on the back; wing quills blackish brown, the inner primaries with a white patch on the outer web, and the secondaries with white tips and borders; four central tail feathers blackish brown, the next pair white on the tips and outer borders, the two outside pairs entirely white.

*Breeding plumage*. Male: A broad, black patch appears above the white forehead; remainder of crown and nape tinged with rusty red; a band from the lores to the ear coverts, and the patch on each side

of the breast black. Female: Lacks the black patch on the front of the crown, while the loreal band and breast patches are rusty brown instead of black. The rufous tinge on the head is less pronounced than in the male.

Young birds have paler edges to the feathers on the upper parts.

Bill black; iris brown; legs and feet dusky gray, or blackish.

Length about 6·5; wing 4·25; tail 1·9; tarsus 1·1; bill from gape ·8.

*Distribution*.—This sub-species, the migrant race of the Kentish Plover, breeds from the W. of Europe to N. Asia and winters to the southward. May be found round the coast during the N.E. Monsoon in company with the next sub-species.

*Habits*.—Much the same as those of the next sub-species.

## 271 CHARADRIUS ALEXANDRINUS SEEBOHMI

The Indian Kentish Plover (Pl. XVI. Fig. 1.)

*Punchi-olēyiyā*, Sinhalese; *sinna-kōtān*, Tamil.

*Charadrius alexandrinus seebohmi* Hartert and Jackson, Ibis. 1915. p. 529 (Ceylon); *Aegialitis cantiana*, Legge p. 947; *Ae. alexandrina*, Oates & Blan. Vol. IV. p. 240.

*Description*.—Similar to the last sub-species, but with a smaller wing-measurement and a smaller bill; the legs too are slightly paler.

Length about 6·25; wing 4·1, or less; tail 1·9; tarsus 1; bill from gape ·7.

*Distribution*.—A resident sub-species which has hitherto been recorded from the shores of the Red Sea and Ceylon.

*Habits*.—With us it occurs on sandy flats round the coast, and on the borders of lagoons; it is fairly common in such localities, especially in the dry zone. Some birds retire inland at breeding time to nest round such tanks as Kantalai and Minneri, others breed fairly freely round Hambantota, Puttalam &c. I have taken eggs from late in April to early in September, but mostly in June and July; generally two, but not infrequently three are laid. The nest is a small, shallow saucer scraped in the sand. The eggs, more especially if there are three, are placed with the small end slanting downwards and half-covered with sand, so that only the large ends are visible. They are rather dumpy, but distinctly pointed at the narrow end. The ground colour is drab, at times tinged with olive, fairly uniformly sprinkled with spots, or scrawly markings of dark brown with a few, fainter undermarkings of neutral tint. The average of 34 Ceylon eggs is 1·20 by ·88.



## Sub-family HAEMATOPODINAE

*Oyster-catchers &c.*

A group consisting of three widely-spread genera; *Haematopus* (Oyster-catchers); *Himantopus* (Stilts); and *Recurvirostra* (Avocets), together with one curious central Asian bird *Ibidorhynca* (Ibis Bill). The last-named genus does not occur in Ceylon; in each of the other genera we have a single species. All three are birds of medium size found by the water's edge, and feeding on molluscs, crustacea, worms, &c. Two of them are rare, winter visitors to our shores the other—the Black-winged Stilt—is fairly common and largely resident. All of them have the front toes webbed to a certain extent, a pied plumage, long, pointed wings, and a long bill. The shape of the bill, however, differs greatly, affording an easy means whereby the three forms may be distinguished.

*Key to Ceylon Haematopodinae*

A.—No hind toe; bill straight, strong, chisel-tipped, and longer than tarsus.

*Haematopus ostralegus longipes* (Siberian Oyster-Catcher).

B.—No hind toe; bill straight, slender, pointed, and shorter than tarsus.

*Himantopus himantopus himantopus* (Black-winged Stilt).

C.—A small hind toe; bill curving upwards, thin, flexible, and pointed.

*Recurvirostra avocetta avocetta* (Avocet).

## 272. HAEMATOPUS OSTRALEGUS LONGIPES

## The Siberian Oyster-Catcher

Vernacular names not recorded.

*Haematopus ostralegus longipes* Buturlin, Men. Orn. 1910. p. 36 (Caspian Basin); *H. ostralegus*, Legge p. 987; Oates & Blan. Vol. IV. p. 245.

*Description*.—Head and neck, upper back, scapulars, and tertiaries black; lower back, rump, tail coverts, and under plumage from the lower neck white; the primary coverts and primary quills are black, with some white on the latter; there is also some white on the edge of the wing, and a white wing band formed by the tips of the median coverts, the outer secondary coverts, and the inner-secondary quills; tail white with a broad, black band at the tip.

Young birds are browner, and have a patch of white on the throat.

Bill orange red at the base, yellower and more dusky at the tip ; iris red, orange, or brownish red ; legs and feet brownish purple, the toes slightly webbed at the base, and with broad soles.

Length 16 ; wing 10 ; tail 4 ; tarsus 2.1 ; bill from gape 3 to 3.25.

*Distribution*.—A rare and occasional visitor during the north-east monsoon to the coast from Jaffna to Puttalam. The sub-species found in Ceylon is probably the Siberian form which is fairly common in winter in India. It is distinguished from the typical form merely by the bill, in which the ridge of the culmen extends over more than half the bill, instead of a bare half, or less than a half.

*Habits*.—Usually seen in small troops, which keep largely to the shore, feeding between high and low water marks on shellfish. &c. Especially fond of rocks uncovered by the tide. A very wary bird.

## 273. HIMANTOPUS HIMANTOPUS HIMANTOPUS

### The Black-winged Stilt

*Kalapu-kiralā*. Sinbalese ; *pavala-kāli*, Tamil.

*Charadrius himantopus* Linn. S. N. i. p. 151 (1751) (Europe) ; *Himantopus candidus*, Legge p. 919 ; Oates & Blan. Vol IV. p. 247.

*Description*.—Adult male : Head, neck, lower parts, lower back, and rump white, the crown and nape often being tinged with gray ; the upper part of the back, the wing coverts, and wings, together with the wing-lining, glossy green black ; tail white, or grayish. Females have the black of the upper parts replaced by brown, except on the wing quills.

Young birds are blackish on the crown and grayer on the hind neck. Probably only quite old birds have the head pure white.

Yearling birds are still lighter brown on the back, with pale edges to the feathers ; the head and hind neck are gray brown.

Bill black ; iris red ; legs and feet lake red, or pinkish red, with black claws.

Length 15 ; wing 9.25 ; tail 3.25 ; tarsus 5.0 ; bill from gape 2.85.

*Distribution*.—Fairly common in the north of the Island and down the east coast as far as Hambantota. Occurs throughout India and Burma, extending through Southern Europe, and Southern Asia.

*Habits*.—Most of our birds appear to be resident. During the wet season they may be seen far inland at the edges of tanks in the Northern and North-Central Provinces. They breed from April to June in fairly large colonies round certain lagoons all down the east coast and by a few tanks, such as Minneri and Kantalai. The nest is the usual depression in the ground near the water's edge, it is sometimes lined with a

few rushes, a little grass, or with waterweeds. The eggs, three or four in number, are drab, or stone coloured, blotched with black. They much resemble the eggs of the Red-wattled Lapwing. Average size 1·72 by 1·21.

## 274. RECURVIROSTRA AVOCETTA AVOCETTA

### The Avocet

Vernacular names not recorded.

*Recurvirostra avocetta* Linn. S. N. i. p. 151 (1758) (Europe. Oland); Legge p. 925; Oates & Blan. Vol. IV. p. 248.

*Description*.—General colour white, with the following parts brown in winter and black in summer :—the forehead, crown, nape, hind neck, the upper part of the mantle, including the shorter scapulars, together with a band on the wing formed by the median coverts, the greater part of the primary quills, and some of the tertiaries. In the winter the hind neck is white, and the tail tinged with brownish gray.

Bill black; iris reddish brown; legs and feet bluish gray.

Length 18; wing 9; tail 3·5; tarsus 3·3; bill from gape 3·25.

*Distribution*.—A very rare straggler in winter; has been obtained near Jaffna, and there are two specimens in the Colombo Museum from Hambantota. A winter visitor to India, commoner in the north, and unknown in Burma. Found all over temperate Europe, Africa, Northern and South-western Asia, breeding in the north of its range.

*Habits*.—Generally found about mud flats and sand banks, in estuaries, or by the shores of salt lagoons.

## Sub-family TOTANINAE

### *Curlews, Sandpipers and Stints*

A large Sub-family, all the members of which are migrants, with a distinct summer and winter dress, visiting us in the winter months and breeding mainly in the far north. In some species, however, more or less numerous, immature specimens loiter, i.e., do not go north to breed, but remain in the Island during the summer months in a bachelor state and winter dress. The plumage is generally some shade of gray, or brown above; paler and often white underneath; never pied, but often streaked. The bill is slender, usually long, and provided with well-developed nerves, giving the organ a keen sense of touch—a necessity for birds which obtain their food mainly by probing in mud and soft sand in search of worms, or other similar small forms of life. This is especially the case with the Stints.

No less than nineteen species are found in Ceylon, distributed among nine genera. These genera fall into two groups: those which have some trace of webbing at the base of the front toes and those which have none. To the former category belong five genera. The first of these, *Numenius* (Curlews), fairly large birds with long, curving, sickle-shaped bills, gives us two species. *Tringa* (Sandpipers) is well represented in Ceylon by seven species, the smaller of which are so familiar to snipe shooters under the name of Snippets. The genus *Limosa* (Godwits), finds its way into the Ceylon list owing to stray specimens of one species having been recorded from the north of the Island. The remaining genera—*Terekia* (Avocet Sandpiper) and *Philomachus* (Ruff and Reeve)—are each confined to a single species, of which rare stragglers have been obtained within our limits.

The four genera devoid of webbing between the toes are: first, *Erolia* (Stints) out of which four species visit us. These are all small birds about the size of a Sparrow. Three of them swarm about the flat shores of our lagoons, but one is excessively rare. Second, *Crocethia* (Sanderling), another single species, placed in a separate genus by reason of its having no hind toe, and only once recorded from Ceylon. Third, *Limicola* (Broad-billed Sandpipers) small forms allied to the Stints, but placed in a separate genus on account of certain differences in the formation of the bill. One form occurs in Ceylon as a rather rare visitor.

Lastly *Calidris* (Knots): This is a genus of two species, both of which breed in high latitudes and straggle into the Indian area in Winter. They are larger birds than the rest of the group. One species *C. canuta* (The Knot) was obtained in December 1923 near Mannar, and is the most recent addition to our list of birds. A second species—(The Eastern Knot) *C. tenuirostris* is also a rare straggler into Burma and Eastern India and may possibly turn up in Ceylon. The tail-coverts are white, instead of white barred with black as in the Knot, and the bird is slightly larger, the length being about 11.5 inches as against 10. Both species may be distinguished from Sandpipers of the same size by the toes, which have no trace of webbing at the bases.

#### Key to Ceylon Totaninae

##### I.—Toes with traces of webbing

##### A.—Bill curved downwards, long; wing over 9 inches.

##### Genus *Numenius*.

##### (a) Crown streaked; wing about 11.5.

*Numenius arquatus lineatus* (Eastern Curlew).

- (b) Crown brown with a pale broken band down centre; wing about 9·5.

*Numenius phaeopus phaeopus* (Whimbrel).

- B.—Bill straight, long, and with a blunt point; wing 7·5, or over. Genus *Limosa*.

- (a) Tail half white, half black.

*Limosa limosa limosa* (Black-tailed Godwit).

- C.—Bill curved upwards, twice as long as tarsus, which is short; wing about 5. Genus *Terekia*.

*Terekia cinerea* (Avocet Sandpiper).

- D.—Bill about same length as tarsus, slender, straight (except in one species), the tip of upper mandible hard and slightly bent down. Genus *Tringa*.

- (a) Small forms; wing not over 5 inches; legs greenish.

- (1) Rump not white.

*Tringa hypoleuca* (Common Sandpiper).

- (2) Rump white.

*Tringa glareola* (Wood Sandpiper).

- (b) Medium forms; wing 5 to 6 inches; legs olive, or green.

- (1) Lower back brown.

*Tringa ochropus* (Green Sandpiper).

- (2) Lower back white.

*Tringa stagnatilis* (Little Greenshank).

- (c) Wing over 6 inches; legs red; rump white.

- (1) Secondary quills brownish barred with white.

*Tringa erythropus* (Spotted Redshank).

- (2) Secondary quills white.

*Tringa totanus eurhinus* (Eastern Redshank).

- (d) Wing over 6 inches; rump white; bill slightly curved up; legs greenish.

*Tringa nebularia* (Greenshank).

- E.—Wing 6 inches, or over; bill noticeably shorter than tarsus; rump and lower back brown. Genus *Philomachus*.

*Philomachus pugnax* (Ruff and Reeve).

- II.—No trace of web between toes.

- A.—No hind toe. Genus *Croceithia*.

- (a) Plumage pale; length 7·5 inches.

*C. alba* (Sanderling).

- B.—A hind toe. Forms under 9 inches in length.

Bill slender.

- (a) Bill straight ; shafts of all primaries partly white.
  - (1) Tarsus gray.  
*Erolia minuta* (Little Stint).
- (b) Bill straight ; shafts of all primaries except first brown.
  - (1) Tail all brown ; mid toe and claw 0·9 inch.  
*Erolia subminuta* (Long-toed Stint).
  - (2) Outer tail feathers white ; mid-toe and claw ·075 inch.  
*Erolia temmincki* (Temminck's Stint).
- (c) Bill curved downwards towards tip.
  - (1) Upper tail coverts chiefly white.  
*Erolia ferruginea* (Curlew Stint).
  - (2) Upper tail coverts blackish brown.  
*Limicola falcinella falcinella* (Western Broad-billed Sandpiper).

C.—A hind toe. Forms over nine inches in length : bill straight.

- (a) Upper tail coverts barred black and white ; length about 10 inches.

*Calidris canuta canuta* (Knot).

## 275. NUMENIUS ARQUATUS LINEATUS

### The Eastern Curlew

*Mā-watunā*, Sinhalese ; *kuthirai-malai-kōtān*, Tamil.

*Numenius lineatus* Cuv. Regne d'Ani. i. p. 521. (1831) (India) ; Legge p. 906 ; *Numenius arquata*, Oates & Blan. Vol. IV. p. 252.

*Description*.—General colour of upper parts light brown, the feathers with darker shaft-stripes, which are broader on the back than on the head and neck ; some of the larger scapulars with dark, arrowhead bars ; wing coverts with paler edges to the feathers ; primary coverts and primaries brown black with white tips, except on the outer primaries ; some white mottling on the inner web of the outer and on both webs of the inner primaries ; secondaries brown barred with white ; tertiaries ash brown with dark brown shaft-stripes and cross bars ; lower back and rump white, the middle feathers with a black shaft-stripe expanding on the tip into a broad spot ; upper tail coverts white with dark spots ; tail ashy brown with dark crossbars ; chin and throat whitish ; the foreneck reddish buff, or brownish, and the remainder of the lower parts white ; the feathers on the neck, breast, and flanks with dark shaft-stripes.

In summer the whole plumage is darker ; the shaft-stripes are everywhere broader, and extend further down on the abdomen.

Bill dark brown, or blackish, the lower mandible being fleshy white near the base; iris brown; legs and feet blue gray.

Length about 23; wing 11·5; tail 4·5; tarsus 3·4; bill from gape 5 to 6 or over.

The birds vary considerably in size, and females are larger than males.

*Distribution*.—Fairly common on the north coast during the north-east monsoon, rarer on the east coast, and a mere straggler in the south and west. A winter visitor to the Indian Empire. This sub-species, which is the eastern race of the Curlew, breeds in Central Asia and winters in India and Ceylon.

*Habits*.—Frequents shallow, tidal flats, low shores round lagoons, or marshy land near the coast. In the north of the Island it may be seen in large flocks on favourite feeding grounds.

## 276. NUMENIUS PHAEOPUS PHAEOPUS

### The Whimbrel

*Mā-watuwā*, Sinhalese; *kuthirai-malai-kōtān*, Tamil.

*Scolopax phaeopus* Linn. S.N. i. p. 146 (1758) (Sweden); *Numenius phaeopus*, Legge p. 910; Oates & Blan. Vol. IV. p. 253.

*Description*.—Upper parts in general brown with paler edges to the feathers, most noticeable on the wing coverts; forehead and crown darker with an indistinct, paler line down the centre; a pale band with narrow, dark streaks from base of bill over the eye to the nape; lores and ear coverts dark brown; primary coverts and primaries blackish brown, tipped, except on the outer primaries, with white; inner webs of all quills and both webs of inner quills notched with white; lower back and rump white with brown drops; upper tail coverts barred brown and whitish; tail ashy brown with darker crossbars; chin and throat white; foreneck and breast whitish with darker shaft-stripes; remainder of lower parts white, barred with brown on the flanks, wing-lining, axillaries, and lower tail coverts.

In winter the barrings and streaks on the lower back and under parts are less distinct than in summer.

Bill black, the lower mandible much paler near the base; iris dark brown; legs and feet blue gray.

Length 17; wing 9·5; tail 3·75; tarsus 2·3; bill 3·25.

Females are slightly larger than males.

*Distribution*.—Occurs during the north-east monsoon at various places round the coast. A winter visitor to the Indian coasts. Breeds in Europe and Northwest Asia, extending in winter from North Africa to India.

*Habits*.—Much the same as those of the last species. Its chief haunts in Ceylon are mangrove swamps round the islands and shores of lagoons. In the middle of the day it may be found perching on mangrove trees, probably for want of rocks, which in its summer haunts are favourite resting places.

A good many immature birds remain all the year round.

## 277. LIMOSA LIMOSA LIMOSA

### The Black-tailed Godwit

Vernacular names not recorded.

*Scolopax limosa* Linn. S. N. i p. 147 (1758) (Sweden); *Limosa aegocephala*, Legge p. 832; *Limosa belgica*, Oates & Blan. Vol. IV. p. 254.

*Description*.—Winter: General colour, above, ashy brown, paler on the head and neck, and darkening towards the rump, which is blackish brown; an indistinct, whitish eyebrow and a whitish spot under the eye; a white band along the tips of the greater wing coverts; primary coverts and primaries blackish brown, with some white on the inner webs of all and on the outer webs of the inner primaries; secondaries white with a broad, black tip, which diminishes on the inner feathers, the outer webs of the inner secondaries being entirely white; upper tail coverts and base of tail white; the outer half of the tail blackish, but lighter at the tip; chin, throat, and under parts whitish, darkening on the fore-neck and breast to grayish brown.

Summer: Head, neck, breast, and back rufous, streaked with black on the crown and nape, mottled with black on the back, and barred with dusky black on the breast; the bars are continued on the abdomen and sides of the body.

Bill fleshy red, dusky at the tip; iris dark brown; legs and feet blackish.

Length about 17·5; wing 8·5; tail 3; tarsus 3; bill 3 to 4·8.

Specimens vary greatly in size and in length of bill. Females are generally larger than males.

*Distribution*.—A pair was once obtained in the extreme N. of the Island at Point Pedro. Common in Northern India in winter; rare in Burma, Assam, and Southern India. Breeds in North Europe and N.W. Asia, wintering from Southern Europe and North Africa eastward to India.

*Habits*.—May be looked for on the tidal flats along the north coast, as possibly a few stragglers now and then visit the Island during the winter months. In India it is found inland on the edges of tanks and swamps.



278. **TEREKIA CINEREA****The Avocet Sandpiper**

Vernacular names not recorded.

*Scolopax cinerea* Gouldenstat. Nov. Com. Petrop. xix. p. 473 (1774) (Caspian Sea); *Terekia cinerea*, Legge p. 836; Oates & Blan. Vol IV. p. 258.

*Description*.—Winter : Upper parts, including tail, light ashy brown, with darker shaft stripes; forehead and eyebrow whitish; lores brownish; there is an indefinite, dark brown band along the lesser wing coverts; outer wing coverts and primaries dusky brown; secondaries brown edged with white; outer tail feathers mottled with white; lower parts white; the foreneck and sides of the breast more or less streaked and washed with gray.

Summer : The black shaft-stripes are strongly developed on the scapulars, and in general are more conspicuous; the sides of the head, the neck, and breast are more noticeably streaked with a shade of brown.

Bill blackish brown; iris brown; legs and feet orange yellow.

Length 9.5; wing 5.1; tail 2.2; tarsus 1.1; bill from gape 2.

*Distribution*.—A rare straggler recorded from the coast in the Mannar District and Southern Province. Mr. Nichols of Jaffna informs me that he saw a pair near Jaffna in October, 1923. Breeds in North-eastern Europe and Northern Siberia, wintering in East Africa, Southern Asia, and Australia. Occurs locally on the coasts of the whole Indian Empire.

*Habits*.—A curious bird, easily distinguished by its pale plumage, long bill curving upwards, relatively short legs, and orange feet. It generally associates in small troops of five or six, and may be looked for on tidal flats and muddy shores of lagoons.

279. **TRINGA HYPOLEUCA****The Common Sandpiper**

*Sili-watuwā*, Sinhalese; *kōtān*, Tamil.

*Tringa hypoleucos* Linn. S. N. i. p. 149 (1758) (Sweden); *Tringoides hypoleucos*, Legge p. 867; *Totanus hypoleucos*, Oates & Blan. Vol. IV. p. 260.

*Description*.—Upper parts, including head and tail, slightly glossy olive brown, with darker shaft-stripes to the feathers; scapulars, tertiaries, wing coverts, and middle tail feathers with a darker border near the tip, which is edged with white; primary coverts and primaries dark brown, the coverts tipped with white; part of the inner web of all primaries, except the first, white; secondaries white with a broad, outer, dusky band, which gradually disappears on the inner feathers; outer

tail feathers barred brown and white; an indistinct, white eyebrow; the cheeks and sides of the neck and breast streaked grayish brown; lower parts whitish with some darker shaft-streaks on the foreneck.

In summer the upper parts lose the olive tinge and become darker, with bolder shaft-stripes and crossbars; the foreneck and breast are more distinctly streaked with brown.

Bill deep brown above, tinged with yellow at the base; iris brown; legs grayish green.

Length 8; wing 4.25; tail 2.25; tarsus .95; bill from gape 1.1.

*Distribution*.—Common throughout the low-country during the north-east monsoon, occasionally found as high up as Nuwara Eliya. Common throughout India in the winter, but less abundant in Northern India than *T. ochropus*; breeds in the temperate regions of the Old World, migrating in the winter as far as South Africa, Southern Asia, and Australia.

*Habits*.—Usually solitary, or found in pairs, and fonder of the sea-shore, the gravelly borders of tanks, and the sides of streams than of paddy fields and swamps. One of our earliest migrants, many birds arriving during August. It often perches on fences, or low boughs near the water.

## 280. TRINGA GLAREOLA

### The Wood Sandpiper

*Sili-watuwā*. Sinhalese; *kōlān*, Tamil.

*Tringa glareola* Linn S. N. i. p. 149 (1758) (Sweden); *Totanus glareola*, Legge. p. 857; Oates & Blan. Vol. IV. p. 260.

*Description*.—Winter: Upper parts bronze brown; the crown and hind neck with faint, paler edges to the feathers; a whitish streak from the bill to above the eye; on the back, scapulars, wing coverts, rump, and tertiaries the feathers have more pronounced, white edges and spottings of white and deep brown; upper tail coverts white, the middle tail feathers light brown barred with dark brown; the remainder of the tail barred brown and white, the brown disappearing on the outside feathers; lesser wing coverts, primary coverts, and wing quills dark brown; secondaries and later primaries tipped with white; foreneck and upper breast light ashy with darker brown streaks; rest of lower parts white with a few black markings on the lower tail coverts.

*Summer*: The upper plumage is more distinctly variegated, dusky brown and white; the head and neck are streaked with white; the breast with distinct, dark spots.

Bill greenish at the base, blackish at the tip; iris deep brown; legs yellowish olive.

Length 8·5 ; wing 4·8 ; tail 2 ; tarsus 1·5 ; bill from gape 1·3.

*Distribution*.—Abundant all over the low-country ; common throughout the Indian Empire ; breeds in Europe and Northern Asia, wintering from Africa eastwards to Southern Asia and Australia.

*Habits*.—The species is found in swarms all over the paddy fields and marshes of the low-country from September to April. It arrives earlier than the Snipe and leaves a little later, collecting in large flocks before departure. It is also fairly common on salt marshes, tidal flats, and the low shores round lagoons. This and the next species but one, i.e., *T. stagnatilis*, are the birds usually known to Snipe shooters as Snippets.

## 281. TRINGA OCHROPUS

### The Green Sandpiper

*Sili-watuwā*, Sinhalese ; *kōtān*, Tamil.

*Tringa ochropus* Linn S. N. i p. 149 (1758) (Sweden); *Totanus ochropus*, Legge p. 862 ; Oates & Blan. Vol. IV. p. 262.

*Description*.—Winter : Upper surface brown with a tinge of olive ; paler on head and neck ; the feathers of the scapulars, wing coverts, and tertiaries edged with alternating pale and dark spots ; outer wing coverts, primaries, and secondaries unrelieved dark brown ; tail white barred with brownish black, the bars disappearing towards the outside feathers ; upper tail coverts white ; an indistinct, white streak on the eyebrow ; the chin and throat whitish ; the sides of the head and of the neck with the upper breast streaked with brown ; remainder of lower parts white ; the axillaries and wing-lining dusky brown barred with white.

Summer : The crown and hind neck are much streaked with white ; the back is spotted with white, and the brown streaks on the sides of head and neck and on the upper breast are broader and more conspicuous.

Bill deep brown, greenish round the nostrils and at the base of the lower mandible ; iris hazel brown ; legs and feet dingy green, grayish, or bluish.

Length 9·5 ; wing 5·5 ; tail 2·5 ; tarsus 1·3 ; bill from gape 1·5.

*Distribution*.—Sandy beds of rivers in the northern half of the Island ; also on streams up-country. Common in Northern India, rarer in Burma and Southern India. Occurs throughout the Old World, breeding in the north and wintering in the south.

*Habits*.—Not a very common bird with us, and seldom seen away from the beds of streams, though in Northern India it frequents marshes, or even paddy fields. It is a wary bird, with a much louder note than that of the last species. About our earliest migrant, arriving in August and not leaving till May.

282. *TRINGA STAGNATILIS*

The Marsh Sandpiper, or Little Greenshank (Pl. XVI. Fig. 2.)

*Sili-watuwā*, Sinhalese; *kōtān*, Tamil.

*Totanus stagnatilis* Becks. Orn. Taschenb. ii. p. 292 (1803) (Holland); Legge p. 844; Oates & Blan. Vol. IV. p. 263.

*Description*.—Winter: General colour above, ashy brown, the feathers with paler edges and inconspicuous, darker shaft-stripes; wing coverts and primaries dark brown; greater coverts, later primaries, and secondaries edged with white; lower back and rump white; upper tail coverts white, sometimes barred with brown; tail white, irregularly barred with brown, the central feathers and the outer webs of the rest tinged with ashy brown; forehead, lores, cheeks, and under parts white, with brown streaks on the sides of the upper breast, neck, and of the head behind the eye.

Summer: The general tone of the upper plumage is ashy gray tinged with brown; there are conspicuous, black, angular patches on the feathers of the back and black arrowheads on the tertiaries; the foreneck and upper breast are marked with brown spots, which turn to irregular bars on the sides of the body.

Bill dark brown, the basal portion of lower mandible greenish; iris hazel brown; legs and feet bluish green, or yellowish.

Length 10; wing 5.5; tail 2.3; tarsus 2.15; bill from gape 1.7.

*Distribution*.—Extremely common, mainly near the coast in the north and east of the Island. Occurs only locally in India and Burma, and generally inland. Its summer haunts lie further south than those of most Sandpipers, extending from South-east France, through Central Asia, to Southern Siberia. It winters in Africa and Southern Asia as far eastwards as the Malay Archipelago.

*Habits*.—In Ceylon this species may be found in numbers by every lagoon, salt marsh, and tidal flat along the coast of the dry zone. It also frequents paddy fields in districts near the sea, and occurs inland round such tanks as Kantalai. Some immature birds remain with us throughout the year.

283. *TRINGA ERYTHROPUS*

The Spotted Redshank

*Maha-watuwā*, Sinhalese; *malai-kōtān*, Tamil.

*Scolopax erythropus* Pall. Voeg's Cat. Coll. Adum. p. 6. (1764) (Holland); *Totanus fuscus*, Legge p. 848; Oates & Blan. Vol. IV. p. 265.

*Description*.—Winter: Upper plumage ashy gray brown; lower back and rump white; upper tail coverts barred black and white; tail ashy brown with broken bars of dark brown and white on the edges;

scapulars, wing coverts, and tertiaries dusky, edged and notched with white, the tertiaries with imperfect, black bars; primary coverts and primaries dark brown, the inner borders of primaries mottled with white, the later primaries and secondaries brownish, barred and tipped with white; lores ashy brown, eyebrow white; sides of face, foreneck, and upper breast indistinctly streaked with ashy gray; there are dusky bars on the flanks; chin, throat, and remainder of lower plumage white.

Summer: The brown of the upper plumage becomes dusky black, spotted and mottled with white on the edges of the feathers; the head, neck, and lower parts gradually become sooty gray, with narrow, white fringes to the feathers on the body; the under wing coverts and axillaries remain white.

Young birds resemble adults in winter plumage, but have more white spots on the edges of the upper plumage, and are broadly barred with dull brown on the lower parts.

Bill black, the basal half of lower mandible orange red; iris brown; legs and feet orange red in winter, dark red in summer.

Length 13; wing 6.75; tail 2.4; tarsus 2.3; bill from gape 2.5.

*Distribution*.—Has once been procured in the Jaffna Peninsula. A common winter visitor to Northern India, rare in Burma, and the south; breeds in the far north of Europe and Asia, migrating in winter to the shores of the Mediterranean and to Southern Asia.

*Habits*.—May be looked for in the same localities as the next species. Like many others of our rare migrants, it may occasionally visit the Island unnoticed.

## 284. TRINGA TOTANUS EURHINUS

### The Eastern Redshank

*Maha-watuwā*, Sinhalese; *malai-kōtān*, Tamil.

*Totanus totanus eurhinus* Oberholser, Pro. U.S. Nat. Mus. xxii. p. 207. (1900) (Ladak); *Totanus calidris*, Legge. p. 852; Oates & Blan. Vol. IV. p. 264.

*Description*.—Winter: Upper plumage light ashy brown; the wing coverts with white edges and irregular, dark bars; the lower back and rump white; upper tail coverts and tail white barred with brown, the central feathers tinged with ashy brown towards the tip. Primary coverts and primaries dark brown; the inner margins of the primaries mottled with white; the tips and the inner webs of the later primaries and the exposed portion of all the secondaries white, showing a large, clear white area on the expanded wing; forehead and lores brown; a

white streak from the bill to the eyebrow; sides of face, foreneck, and upper breast white streaked with brown; remainder of lower parts white with a few streaks on the flanks and lower tail coverts.

Summer: Upper plumage brown, tinged in parts with rufous and streaked with dark brown; scapulars and tertiaries with dark shaft-stripes and herring-bone bars; the feathers of the lower plumage, except on the abdomen, boldly streaked and spotted in the centre with blackish brown.

Young birds resemble adults in winter plumage, but are more marked on the upper parts, where the feathers have reddish brown edges; the wing coverts and tertiaries are marked with fulvous; the foreneck, breast, and flanks are streakily marked with ashy brown.

Bill black, reddish at the base; iris brown; legs and feet orange red.

Length 11; wing 6.25; tail 2.5; tarsus 1.9; bill from gape 1.9.

*Distribution*.—Moderately common on the coast from the Puttalam District round by Jaffna to Hambantota. Rare on the coast elsewhere. Scattered through India and Burma in suitable localities during the winter, breeding in Central Asia and the Himalayas. This sub-species is the Central Asian race of the Common Redshank.

*Habits*.—Generally seen in small troops on the muddy shores of estuaries or lagoons, near the cover of bushes, or mangroves. A very shy bird with a loud call and a swift, twisting flight, especially when fired at.

## 285. *TRINGA NEBULARIA*

### The Greenshank

*Mā-olēyiyā*, Sinhalese; *periya-kōtān*, Tamil.

*Scolopax nebularia* Gunner. Leem. Beskr. Finm. Lapp. p. 251 (1767) (Norway); *Totanus glottis*. Legge p. 840; Oates & Blan. Vol. IV. p. 266.

*Description*.—Winter: General colour of upper parts ashy brown; the top and sides of the head and sides of the neck much streaked with white; back, wing coverts, scapulars, and tertiaries with dark shaft-stripes and black and white edges to the feathers, the scapulars and tertiaries in some cases being imperfectly barred with black on their margins; lower back, rump, and upper tail coverts white; tail barred with brown, most strongly on the central feathers, which are ashy brown at the tip; the primary coverts and primaries are blackish brown, the later primaries and secondaries narrowly edged with white; forehead, eyebrow, the sides of the face in front of the eye, and the lower plumage white; a patch of streaky brown on the lores at the base of the lower mandible; wing-lining and axillaries barred with brown.

Summer: The whole head and neck are streaked with blackish brown; the feathers of the back and ~~scapulars~~ have conspicuous, broad

black centres ; the foreneck and sides of the breast are spotted with dark brown, a few spots extending to the middle of the breast.

Bill olive brown, darker at the tip and slightly curved upwards ; iris brown ; legs and feet yellowish green.

Length 14 ; wing 7.5 ; tail 3.25 ; tarsus 2.5 ; bill from gape 2.5.

*Distribution*.—Widely distributed round the coast, commonest in the north and east. Occurs throughout the Indian Empire. Breeds in Northern Europe and Siberia, wintering from Southern Asia to China and Australia.

*Habits*.—Keeps chiefly to tidal flats, the shores of lagoons, and wet fields near the sea, but I have seen it in paddy fields 30 miles inland in the south of the Island. As a rule is seen only singly, or in pairs. A good many immature birds remain during the south-west monsoon.

## 286. PHILOMACHUS PUGNAX

### The Ruff and Reeve

Vernacular names not recorded.

*Tringa pugnax* Linn. S. N. i. p. 148 (1758) (Sweden) ; *Machetes pugnax*, Legg p. 873 ; *Pavoncella pugnax*, Oates & Blan. Vol. IV. p. 268.

*Description*.—Winter : Both sexes—forehead, lores, and cheeks whitish speckled with dusky brown ; sides of head and neck speckled with brown ; the upper parts to the tail ashy brown, with dusky brown centres and whitish fringes to the feathers ; greater wing coverts tipped with white ; primary coverts and wing quills dark gray brown, the secondaries with white tips ; outermost upper tail coverts white ; lower parts white with a varying amount of gray, or brown, diffused over the foreneck and upper breast.

In summer the males grow yellow tubercles on the face, develop enormous ruffs, and assume a fancy dress on the head, breast, and ruff. The colours may be any combination of white, glossy metallic black, chestnut, or orange buff. The back, scapulars and inner wing coverts are sprinkled with hues to correspond. Females in summer have the feathers of the upper plumage velvet black, fringed with sandy buff ; the tertiaries are boldly marked with buff and black in irregular bars ; the foreneck and breast are mottled with black.

Young birds are mostly ash gray, tinged with buff on the lower parts, while the tertiaries are not barred ; otherwise they resemble females in summer.

Bill dark brown, paler at the gape ; iris brown ; legs and feet fleshy yellow to yellowish brown.

Males : length 12 ; wing 7.3 ; tail 2.75 ; tarsus 1.9 ; bill 1.5 . Females are smaller : length 10 ; wing 6.

*Distribution*.—One specimen was obtained over forty years ago in the Hambantota District, and in February, 1914, I saw three birds near Hambantota and secured one for the Museum. A third specimen was shot by Mr. T. H. Haddon near Mannar in December, 1923. This skin too is in the Colombo Museum. Common in Northern India during the winter. Rare in Burma and the south. Breeds in temperate Europe and Asia, migrating to Africa and Southern Asia as far east as India.

*Habits*.—Should be looked for round unfrequented lagoons from November to March. It may occasionally visit us and pass unnoticed among the swarms of other Waders. It can be distinguished from other Sandpipers of the same size by its dark lower back and rump.

## 287. CROCETHIA ALBA

### The Sanderling

Vernacular names not recorded.

*Crocethia alba* Pall. Voeg's Cat. Coll. Adum. p. 7 (1766) (N. Holland); *Calidris arenaria*, Legge p. 1220; Oate & Blan. Vol. IV. p. 270.

*Description*.—Winter: Upper parts light gray tinged with brown, each feather with dark shaft-stripes and paler edges; forehead, face, and lower parts white; wing coverts and quills blackish brown; across the wing there is a white band formed by the tips of the greater coverts; the basal portion of the inner web of all the quills and the same part of the outer web of the later primaries white; quill shafts white; hind neck lighter and the rump darker than the back; rump white at the sides; central tail feathers ashy brown, black at the tip, with white shafts and margins; rest of the tail feathers grayish brown edged with white and with some white on the inner webs.

Summer: The upper parts are rufous cinnamon with black centres and pale ashy edges to the feathers; foreneck and breast rufous, mottled with black; remainder of lower parts white.

Young birds are blackish above, with pale gray edges to the feathers; lower parts white.

Bill black; iris deep brown; legs and feet black, there is no hind toe.

Length 7.5; wing 4.75; tail 2; tarsus 1; bill from gape 1.1.

*Distribution*.—A specimen was once obtained from a flock on an islet in Negombo lagoon. This bird is found on the coast of India, but is rare, except in Sind and Baluchistan. It occurs nearly all over the world, breeding in arctic regions and migrating south in winter.

*Habits*.—Usually met with in small flocks round flat shores, often in company with other Waders, especially Sand Plovers and Stints.



**288. EROLIA MINUTA****The Little Stint** (Pl. XVI. Fig. 3.)

*Punchi-watuwā*, Sinhalese ; *kallu-porukki*, Tamil.

*Tringa minuta* Leisler, Nacht. Bechs. Nat. Deuts. p. 74. (1812) (Hanau); Legge p. 884 ; Oates & Blan. Vol. IV. p. 273.

*Description*.—Winter : Upper plumage brown tinged with gray, each feather with broad, black shaft-stripes; the fore-head, eyebrow, lower cheeks, and under parts white ; the sides of the neck and of the breast brownish with darker streaks ; wing coverts and tertiaries darker with pale edges to the feathers ; the greater coverts have broad white tips ; wing quills dark brown with white shafts ; secondaries white at the base, the white predominating on the inner secondaries ; the middle of the lower back, rump, and tail coverts blackish brown, the sides white ; tail dark brown in the centre, lighter, smoky brown at the sides.

Summer : Upper parts rufous with black centres to the feathers ; fore-neck and upper breast tinged with rufous and spotted with dark brown.

Young birds have the upper plumage blackish with rufous borders and white edges to the feathers ; the lower parts are tinged with dingy buff on the neck and breast, but not spotted.

Bill black, straight ; iris brown ; legs and feet black, or deep lead colour.

Length 6 ; wing 3·95 ; tail 1·6 ; tarsus ·8 ; middle toe and claw ·75 ; bill from gape ·7.

*Distribution*.—Common all round the coast, except from Negombo to Tangalla ; sometimes found inland round larger tanks. Abundant in suitable localities throughout India west of the Bay of Bengal. Breeds in Northern Europe and Siberia, wintering in Africa and South-western Asia.

*Habits*.—Feeds in large flocks on flat, sandy, or muddy shores ; in Ceylon it is commonest on the coasts, or round lagoons. A few immature birds stay with us through the summer.

**289. EROLIA SUBMINUTA****The Long-toed Stint**

*Punchi-watuwā*, Sinhalese ; *kallu-porukki*, Tamil.

*Tringa subminuta* Midden. Reis. N.O. and O. Siberia. (1851) (Stanaway); Legge p. 889 ; Oates & Blan. Vol. IV. p. 275.

*Description*.—Winter : The plumage is similar to that of *E. minuta*, but is darker ; the head and neck are more spotted with black, while the lower throat and foreneck are noticeably streaked and mottled with brown ; the shaft of the first primary is dirty white of the remainder pale brown.

In summer also the coloration resembles that of the last species, but in both stages this species may be distinguished by the long middle toe and claw, which together measure 0.9 to 1.0 inch, as against .75.

Bill olive brown; iris brown; legs and toes olive yellow, or brownish.

Length 6; wing 2.7; tail 1.5; tarsus .8; bill from gape .75.

*Distribution*.—Fairly common on the coast in the north-west, north, and east of the Island. Common in Bengal and Burma during the north-east monsoon. Breeds in Eastern Siberia, migrating to South-eastern Asia and Australia for the winter.

*Habits*.—Feeds in small parties on salt marshes, or on the ooze round lagoons; occasionally found in paddy fields near the sea, as at Galle, or even further inland. A good many barren birds remain with us through the summer months. As usual, the birds which thus loiter are in winter plumage, though birds which migrate have often assumed most of their summer dress before leaving.

## 290. *EROLIA TEMMINCKII*

### Temminck's Stint

*Punchi-watuwā*, Sinhalese; *kal'u-porukki*, Tamil.

*Tringa temminckii* Leisler. Nacht. Beckst. Nat. Deutsch p. 75 (1812) (Hanau.); *T. temmincki*, Legge p. 892; Oates & Blan. Vol. IV. p. 275.

*Description*.—Winter: Upper plumage ashy gray with indistinct darker shaft-stripes, the colour becoming deeper towards the rump; wings and central feathers of the tail dark brown; the inner primaries, secondaries, and greater wing coverts tipped with white; shaft of the first primary white, of remainder pale brown; the two outer feathers on each side of the tail pure white, as are the sides of the rump and upper tail coverts; lores brown edged above with a faint, white streak; chin, throat, and lower parts white with a broad band of brownish gray on the lower foreneck and chest.

Summer: the upper plumage is darker and mottled with black, and the edges of the feathers are more or less tinged with rufous; the pectoral band is marked with small, dark spots.

Bill black; iris brown; legs and feet greenish olive.

Length 6; wing 3.75; tail 2; tarsus .65; middle toe and claw .75; bill from gape .65.

*Distribution*.—Obtained once near Trincomalee by Captain Legge. Common in Northern India, rare in the south and Burma. Breeds in the extreme north of Europe and Asia, wintering in Southern Europe, North Africa, and Southern Asia.

*Habits*.—Those of the Little Stint, with which it associates. Quite possibly it visits the Island in small numbers regularly, passing unnoticed among the swarms of the commoner species.

## 291. EROLIA FERRUGINEA

### The Curlew Stint

*Punchi-watuwā*. Sinhalese; *kallu-porukki*. Tamil.

*Tringa ferruginea* Brunnick. Orn. Bor. p. 53 (1764) (Iceland); *Tringa subarquata*. Legge p. 879; Oates & Blan. Vol. IV. p. 278.

*Description*.—Winter: General colour of upper parts ashy brown with slightly darker shaft-stripes; most of the wing coverts have paler edges and the greater coverts have white tips; primary coverts, primaries, and secondaries dark brown; the inner primaries and secondaries edged with white on the outer web: the secondaries are also white at the base, the white increasing on the inner feathers; lower back and centre of rump dark with paler edges; upper tail coverts and sides of the rump white; tail ashy brown fringed with white; lores dusky and bordered above by a white streak running from the bill over the eyes; sides of head and neck brownish with darker streaks; lower neck and chest tinged with gray and streaked with brown; remainder of lower parts white.

Summer: Upper plumage rufous chestnut mottled with black and whitish buff; lower parts reddish chestnut with faint, hoary margins to the feathers, most conspicuous on the abdomen.

The young resemble old birds in winter plumage, but the lower parts are almost all white, and the feathers of the upper parts are fringed with buff, or whitish.

Bill black and curving at the tip, the groove from the nostrils distinctly marked for over half the length of the bill; iris brown; legs dusky gray.

Length 8.5; wing 5.1; tail 1.85; tarsus 1.2; bill from gape 1.5.

*Distribution*.—Abundant all round the coast of the dry zone. Common on the coasts of India; rare inland. Breeds in the far north of Siberia, wintering in Africa, Southern Asia, and Australia.

*Habits*.—Found on sandy shores and salt marshes, and in great numbers round lagoons; seldom seen inland. It may be met with in small troops associating with other Stints, or in large flocks of its own species. Immature birds in considerable numbers stay in the Island during the summer. Mature birds often change to full summer dress before they leave in May.

## 292. LIMICOLA FALCINELLA FALCINELLA

## The Western Broad-billed Sandpiper

Vernacular names not recorded.

*Scolopax falcinellus* Pontop. Danske. Atl. i. p. 263 (1763) (Denmark); *Limicola platyrhyncha*, Legge. p. 896; *Tringa platyrhyncha*, Oates & Blan. Vol. IV. p. 279.

*Description*.—The coloration is similar to that of the last species, but the bird is slightly smaller. The shaft-stripes of the upper plumage are more developed, while the rump, upper tail coverts, and tail are blackish brown with paler edges. The under parts are white with narrow, dark streaks on the foreneck and upper breast. In the summer the upper parts are velvety black with narrow, whitish, or buff edges; the crown is almost unstreaked, and there are narrow, rufous borders to the tertiaries. The throat, the sides of the neck, the foreneck, and upper breast are tinged with rufous and spotted with dark brown. In both stages the bird may be recognized by the bill. The ridge between the nasal grooves is not continued far down the upper mandible, which is flattened out for about two-thirds of its length.

Bill brownish black; iris dark brown; legs olive brown.

Length 7; wing 4.2; tail 1.5; tarsus .8; bill from gape 1.3.

*Distribution*.—Another rare straggler, noted from Point Pedro and the Hambantota District, while in February 1921 the Museum collector obtained six specimens on the lagoons near Mannar. It is possibly not so rare as would appear, as it may pass unnoticed among commoner species. The form found in Ceylon is probably this sub-species, which breeds in N. Europe and N.W. Asia, wintering in S. Europe and S. W. Asia. The Eastern sub-species *L. f. sibirica* is rare W. of the Bay of Bengal. It is distinguishable, only in the summer plumage, by the broader rufous edges to the feathers of the crown and back.

*Habits*.—May be looked for among flocks of other Stints on sandy, or muddy flats by the sea and round lagoons. It seldom ventures inland.

## 293. CALIDRIS CANUTA CANUTA

## The Knot

Vernacular names not recorded.

*Tringa canutus* Linn. S. N. i. p. 149 (1758) (Sweden); neither in Legge nor Oates & Blan.

*Description*.—Adult in winter: Upper parts from crown to rump brownish gray with indistinct, darker shaft stripes; sides of head and neck white with streaks of the same colour as the upper parts; a broadish whiter band over the eye; most of wing coverts with paler edges; pri-

mary coverts and winglet almost black, the greater coverts tipped with white; primary quills dusky brown with white shafts; secondaries grayish with white borders; some of the rump feathers and all the upper tail coverts white barred with black; tail feathers gray; lower parts white, the throat, fore-neck and upper breast tinged with gray and flecked with dusky brown.

Male in summer: Under parts, eye-brow and sides of face chestnut; upper parts black with chestnut borders; the white of the rump and tail coverts tinged with chestnut.

Female in summer: somewhat like the male, but the chestnut hue is paler.

Bill black; iris dark brown; feet greenish black.

Length about 10; wing 6; tail 2.15; tarsus 1.15; bill from gape 1.25.

*Distribution*.—Breeds in the Arctic regions of the Old World and in Winter spreads as far South as Africa and Australia. It very seldom occurs in India and the Ceylon records are confined to a single specimen shot by Mr. T. H. Haddon, while in my company, on some grassy flats near the lagoon, five miles S. of Mannar, on December 15th 1923.

### Sub-family SCOLOPACINAE

#### *Woodcocks and Snipes*

These are a group of birds with well-marked external characteristics familiar to every sportsman. The bill is long and slender, well provided with nerves, slightly swollen at the tip, straight and pitted. The eyes are large and set far back in the head. The tarsus is of moderate length; the front toes bear no trace of webbing, the hind toe is present, but small. The plumage of the upper parts is of richer colour and more heavily mixed with black than is the case among the *Totaniac*. All the species are migrant and more or less nocturnal in their habits.

The Sub-family is divided into three genera:—

1. *Scolopax* (Woodcocks), in which the legs are feathered to the tarsal joint, and the crown is banded across with black. Only one form, the typical Woodcock, occurs in Ceylon, being occasionally recorded from the hill districts.

2. *Gallinago* (true Snipes).—In this genus the leg is naked for some little way above the tarsal joint, and the crown is streaked lengthwise by pale bands. Three species find their way into the Ceylon list, but only one—the Pintail Snipe—is common; the others are rare stragglers.

3. *Limnocryptes* (Jack Snipe)—A single species, considerably smaller than the other Snipe. It has only 12 tail feathers, the back is glossed with green and purple and there is no pale band down the middle of the crown.

The curious and handsome Painted Snipes with their ocellate plumage and Rail-like habits are now relegated to a separate family.

*Key to Ceylon Scolopacinae*

I. Bill straight; crown barred crosswise; legs feathered down to tarsal joint. Genus *Scolopax*.

*Scolopax rusticola rusticola* (Woodcock).

II.—Tibia partly naked; head and back with pale stripes lengthwise. Genus *Gallinago*.

A.—Bill over 2 inches; a pale stripe down middle of crown.

(a) Length about 12 inches; abdomen barred throughout.

*Gallinago nemoricola* (Wood-Snipe).

(b) Middle of abdomen not barred, save in exceptional specimens; length about 10.5 inches.

(1) Secondary quills with noticeable, white tips; no pin feathers in tail.

*Gallinago gallinago gallinago* (Common, or Fantail Snipe).

(2) Pin feathers in tail; secondaries with narrow inconspicuous, white tips, or none.

*Gallinago stenura* (Pintail Snipe).

B.—Bill under 2 inches; no pale band down middle of crown; back glossed with green and purple.

*Limnocryptes minima* (Jack Snipe).

## 294. SCOLOPAX RUSTICOLA RUSTICOLA

### The Woodcock

*Maha-keswatuwā*, Sinhalese.

*Scolopax rusticola* Linn. S. N. i. p. 146 (1758) (Sweden); *S. rusticola*, Legge p. 806; Oates & Blan. Vol. IV. p. 283.

*Description*.—Upper plumage blackish gray mottled with black and rufous; forehead and fore part of crown grayish; the top of the head and the nape black with two tawny crossbars; a dark, broad stripe from the gape of the bill to the eye and another down the cheek; the rest of the head and neck buff with black spots; wing coverts and tertiaries barred with dusky brown and rufous; the primary coverts, primaries

and secondaries black brown notched with rufous; rump and upper tail coverts barred black and rufous; tail black, the outer webs of the feathers with rufous markings and the tips dark gray above, silvery white underneath; chin more or less white; the lower parts whitish brown barred across with dark brown.

Bill dark brown, fleshy brown near the base; iris dark brown; legs and feet grayish drab, or lead colour.

Length 14; wing 7.75; tail 3.25; tarsus 1.5; bill from gape 3.00.

*Distribution*.—An occasional migrant to the higher hills. Breeds in N. Europe and N. Asia, and in the Himalayas above 10,000 feet, wintering Southwards and visiting at this season the lower valleys and the South Indian and Burmese hills.

*Habits*.—May be found occasionally in the hills from November to February. The birds generally keep to damp forest near water, where the ground is soft, and appear to visit a few favourite localities year after year.

## 295. GALLINAGO NEMORICOLA

### The Wood-Snipe

Vernacular names not recorded.

*Gallinago nemoricola* Hodg. J.A.S.B. vi. p. 490 (1831) (Nepal); Legge p. 814; Oates & Blan. Vol. IV. p. 285.

*Description*.—Upper plumage black, the wing coverts spotted and barred with tawny buff, and the scapulars with broad, tawny edges; head and neck brownish black; a light stripe down the centre of the head, imperfectly developed; a dark band from the gape of the bill to the eye, and another across the cheek; the sides of the head and the neck all round are dull buff streaked with black; lower back and rump marked with narrow bars of whitish, or brownish buff, brightening to rufous on the upper tail coverts; the six central feathers of the tail are black, their ends rufous with a slight, black crossbar and pale tips; outer tail feathers barred with dull rufous and brown, and pale tipped; primary coverts, primaries, and secondaries dark brown; breast and abdomen grayish white barred with dull brown; wing-lining and axillaries grayish brown barred with white.

Bill reddish brown, pale at the base underneath; iris dusky brown; legs plumbeous green.

Length 12; wing 5.5; tail 2.2; tarsus 1.5; bill from gape 2.5.

*Distribution*.—Neville, *vide* Legge, states that this species has been found round Nuwara Eliya, and I have several times been informed by sportsmen that they have shot a Snipe which was much larger than a

Pintail, and was not a Woodcock. If in future any Snipe shooter comes across a large Snipe he should endeavour to send at any rate the head and wing to the Museum for identification. Such birds are in all probability this species which breeds in the Himalayas and is found occasionally in winter in the hills of S. India and Burma.

*Habits*.—A shy, solitary bird which should be looked for in damp spots on the outskirts of forest in the hills.

## 296. GALLINAGO GALLINAGO GALLINAGO

### The Fantail Snipe

*Keswatuwā*, Sinhalese; *ullān-kururi*, Tamil.

*Scolopax gallinago* Linn. S. N. i. p. 244. (1758) (Sweden); *Gallinago scolopacina*, Legge p. 821; *G. coelestis*, Oates & Blan. Vol. IV. p. 286.

*Description*.—This species in plumage closely resembles the next, *G. stenura*, but may be distinguished as follows:—The tail has no pin feathers; on the axillaries the white bars are broader than the brown; the bill of the present species broadens slightly towards the tip, that of the Pintail Snipe does not; the outer web of the first primary is whitish instead of brown; the secondary quills have fairly conspicuous, white tips.

Length 10·5; wing 5·00; tail 2·25; tarsus 1·25; bill from gape 2·6.

*Distribution*.—A very rare migrant during the north-east monsoon. It is said to have been seen at Nuwara Eliya, and two specimens were obtained at Tanglegam, near Trincomalee, while in December, 1923 Messrs. Griffiths and Haddon shot three near Mannar and gave me one specimen, which is in the Colombo Museum. In Northern India it is the predominant Snipe, but in Southern India and Burma it is rare, being largely replaced by the Pintail snipe. It breeds in Europe and Central and Northern Asia, as far east as Lake Baikal, wintering in Southern Europe, North Africa, and Southern Asia.

*Habits*.—Similar to those of the next species.

## 297. GALLINAGO STENURA

### The Pintail Snipe

*Keswatuwā*, Sinhalese; *ullān-kururi*, Tamil.

*Scolopax stenura* Kuhl. Bonap. Ann. Stor. Nat. Bol. iv. p. 335 (1830) (Sunda Is.); *Gallinago stenura*, Legge p. 816; Oates & Blan. Vol. IV. p. 289.

*Description*.—General colour of upper plumage black; the top of the head with a broad, pale band down the centre, and another on each side just over the eye; a dark brown band from the bill to the eye; the sides of the head streaky whitish and brown; the broad, tawny edges of the scapulars form two long bands down the back; the primary coverts,



primaries and secondaries black brown, the later primaries and the secondaries faintly tipped with white; tertiaries barred black and tawny; rump and upper tail coverts barred with rufous, or dark buff; the ends of the tail feathers rufous yellow fringed with black and with pale edges; the pin feathers, which are often hidden under the tail coverts, usually number six on each side and are brown with white tips; chin whitish; the neck all round and the upper breast dull buff streaked with dark brown; remainder of the lower parts generally white, the flanks being barred with brown, while the lower tail coverts are buff with dark brown markings; wing-lining and axillaries coloured dusky brown and white in bars of equal width.

Bill blackish, paler at the tip, and olive green underneath at the base; iris deep brown; legs and feet olive green.

Length 10·5; wing 5·25; tail 1·8; tarsus 1·25; bill from gape 2·5.

*Distribution*.—The only Snipe which visits the Island in any great numbers. Abundant all over the low country during the north-east monsoon, and more or less plentiful in up-country paddy fields and swamps. Common in Southern India, Assam, and Burma, but rarer in the west and north. Breeds in Eastern Siberia, and winters throughout South-eastern Asia and the Malay Archipelago.

*Habits*.—The earliest birds arrive on the western side of the Island at the end of August, or the beginning of September; in the north, east, and south-east they are not generally found till a few weeks later. The birds begin to leave again about mid-April, and few are left by the end of the month. Occasionally immature individuals stay with us during the south-west monsoon, while nests have been recorded twice from the low-country, and in the Colombo Museum there is a fully-formed egg, taken from the oviduct of a bird shot late in the season, showing that occasional and probably slightly wounded stragglers breed in the Island. Snipe keep to soft and muddy ground, and are most abundant in large paddy fields near jungle and in the marshy surroundings of tanks. They move about from field to field a good deal, preferring, as a rule, those in which the crop has grown fairly thick, but not too high. To some extent they are nocturnal, and in the low-country during the heat of the day they lie up in the edge of the jungle round the fields, or in any little, shady retreat that may be handy.

## 298. LYMNOCRYPTES MINIMA

### The Jack Snipe

Vernacular names not recorded.

*Scelopax minima* Bränn. Orn. Bor. p. 49 (1764) (Europe); *Gallinago gallinula*, Legge p. 828; Oates & Bian. Vol. IV. p. 292.

*Description*.—Crown and nape black in the centre with a few rufous specks, and bordered on each side with broad, buff stripes from the bill to the nape; a dark band from the bill to the eye and a dark cheek stripe; sides of the head speckled whitish; hind neck fulvous brown mottled with black and traces of whitish; back and scapulars black with a metallic gloss of green, or purple, and mottled with rufous; a broad edge of rich buff on the outer webs of the scapulars forms a band down each side of the back; upper tail coverts and tail brown bordered with buff; wings brown, the lesser wing coverts with whitish and the median coverts with rufous buff edges; secondary quills with white tips; chin whitish; foreneck and upper breast brown streaked with white and black; lower breast and abdomen white; under tail coverts striped with brown.

Bill brown at the sides, black at the tip, elsewhere yellowish; iris dark brown; legs grayish green.

Length 8.5; wing 4.25; tail 2; tarsus 0.9; bill from gape 1.6.

*Distribution*.—An occasional visitor recorded from the Northern and Eastern Provinces, Dimbula and near Colombo. A fairly common migrant in Northern India; rare in Southern India and Burma. Breeds in the Arctic Circle of Europe and Asia, wintering in Southern Asia and the countries bordering the Mediterranean.

*Habits*.—In general a solitary bird, frequenting damp, marshy ground, where the grass is thick.

## Family ROSTRATULIDAE

### *Painted Snipes*

The Painted Snipes belong to a curious genus which is now placed in a Family by itself. In outward form they somewhat resemble true Snipes, but there are well-marked points of distinction. The plumage differs considerably in the two sexes, and is more gaudy than in any of the *Charadriidae*. The female is more conspicuously clad than the male and young birds resemble the more staidly coloured cock. The bill is long and slender, but bends downwards at the tip and is not pitted. The eyes, though large, are placed well forward. The wings are rather short and broad. Painted Snipes are non-migratory and in their habits show more resemblance to Rails and Sandpipers than to true Snipes.

Only one species occurs in the Old World, but two others inhabit Australia and South America respectively.

## 299. ROSTRATULA BENGHALENSIS BENGHALENSIS

## The Painted Snipe

*Rājā-watuwā*, *ulu-kesuwatuwā*, Sinhalese; *ullān-kuruvi*, Tamil.  
*Rallus benghalensis* Linn. S. N. i. p. 153 (1758) (Asia); *Rhynchaea capensis*,  
 Legge p. 800; *Rostratula capensis*, Oates & Blan. Vol. IV. p. 293.

*Description*.—Male: Crown olive black with a buff band down the centre; a ring round the eye and a stripe behind it are also buff; lores brown; sides of head streaked white and brown; upper surface ashy brown glossed with olive and marked with fine, wavy bars of dusky black and broader bars of greenish black; the buff outer borders of the scapulars form a pale streak down each side of the back; tertiaries and wing coverts marked with buff bars and buff, black bordered spots; wing quills bluish-gray barred and blotched with black and spotted with oval, buff markings; rump, upper tail coverts, and tail blue gray barred with black, and with buff spots on the coverts and tail; chin whitish; sides of neck, foreneck, and upper breast streaky brown and white; remainder of lower parts white, with a white band running from the breast up each shoulder; the sides of the breast bordering this white band are deep brown.

Female: the lores and cheeks are rufous, passing into chestnut on the throat and round the neck; there is a broad, black, pectoral gorget; the wing coverts lack the buff spots, and beneath the scapulars is a tuft of pure white, lanceolate feathers. Young birds resemble adult males.

Bill dusky green, reddish at the tip; iris olive brown; legs olive brown.

*Distribution*.—Resident throughout the Island, but moves about a good deal, being commonest in the west during the north-east monsoon. This sub-species occurs all over India south of the Himalayas and in Burma; it ranges from N. E. Africa to China.

*Habits*.—In its ways this species resembles the Rails more than the other Snipes. It skulks about in damp ground, where the grass and rushes are thick, or hides in damp corners of paddy fields. It is heavy on the wing, and generally difficult to flush. As a rule, not more than a pair are met with together. It breeds in its haunts from November to May, but mostly in March. The nest is a light depression in moist ground, lined with grass, or rushes. The four eggs are stone-yellow boldly blotched with black; the average of 26 Ceylon eggs is 1.38 by .97.

## Order XVI. GAVIAE

### *Gulls, Terns and Skuas*

The *Gaviae* constitute an Order which is closely related to the preceding *Limicolae*. It has been shown that in all probability the Gulls and their allies sprang from the common ancestors of the Plovers and Snipes, and are in fact aberrant Plovers, to which other aberrant Plovers, such as the Pratincoles and Crab Plovers, show considerable affinity, all being specialized offshoots from the same main stem.\* In details of anatomy the two Orders display marked resemblance, the *Gaviae*, however, being modified in outward form to fit them for their sea-faring life. Their wings are long and pointed, giving their flight speed and endurance; their legs are short; the front toes are webbed, while the hind toe is small and set on the foot at a higher level than the others; the bill varies in the Families and Sub-families of the Order.

In their nidification also these birds resemble the Waders; their eggs are of much the same character, being marked by spots of two different hues, and laid on the ground with little, or no nest. The young are hatched covered with down, and are able to run about at once, though for a few days they are fed by their parents.

The classification of the Order varies considerably among different authors. By Dr. Blanford the Indian members are divided as follows:—The Skuas are placed by themselves in one Family—*Stercorariidae*; the Gulls—*Larinae*, the Terns—*Sterninae*, together with the Skimmers—*Rhynchopinae*, of which no species occurs in Ceylon, form three Sub-families of a second Family *Laridae*. The two Families are outwardly distinguished thus:

1. Bill without a cere; claws only moderately curved and not sharp. *Laridae* (Gulls and Terns).
2. Bill with a cere; claws powerful, boldly curved and sharp. *Stercorariidae* (Skuas).

\* Mr. R. P. Lowe "On the Crab Plover" *Ibis*, April, 1916, p. 437.

## Family LARIDAE

As stated above, the Ceylon *Laridae* fall into two Sub-families, which may be distinguished by the shape of the bill :—

1.—Upper mandible longer than the lower and curved at the tip.

—*Larinae*. Gulls.

2.—Both mandibles of equal length.—*Sterninae*. Terns.

## Sub-family LARINAE

*Gulls*

Gulls are in general birds of the sea, though many of them are also found on inland waters, and some of them breed far from the coast. They are fairly stout in build ; the wings are long, and when closed project beyond the tail ; the tarsus is short, and the feet large ; the front toes are fully webbed ; the bill is of moderate length and fairly strong, the upper mandible being curved downwards at the tip into a moderate hook. They habitually rest on the surface of the water, sitting very buoyantly. Often, however, they take to the land, and can walk well. Their food consists mainly of dead fish, floating garbage, and crustacea. Gulls as a rule have a very marked immature plumage, in which dingy, mottled, light brown predominates. This immature phase contrasts greatly with the pied plumage of white, clear gray and black, or dark brown borne by the adult, but the change is gradually made.

Seven species of the large genus *Larus* occur in India, mainly as cold weather visitors. Of these, three have been recorded from Ceylon. None of them breed anywhere near the Island and only one occurs in any numbers, the other two being the merest stragglers.

*Key to Ceylon Larinae*

A.—Head of adults with a dark hood in summer,

1. Larger; wing 18, or more; head streaked with black in winter; in immature birds the tail coverts and base of tail are white.

*L. ichthyæthus* (Great Black-headed Gull).

2. Smaller; wing about 13; head in winter almost wholly white.

*L. brunnicephalus* (Brown-headed Gull).

B.—Wing about 17. Head and neck of adults in summer clear white ; in winter crown and hind-neck with a few brown spots ; in young birds tail coverts and base of tail mottled brown and white.

*L. fuscus taimyrensis* (Dark-backed Herring Gull).

### 300. LARUS ICHTHYAETUS

#### The Great Black-headed Gull

Vernacular names not recorded.

*Larus ichthyaetus* Pall. Reise. Reichs. Russ. ii. p. 713. (1833) (Caspian) ; Legge p. 1046 ; Oates & Blan. Vol. IV. p. 299.

*Description*.—Adult summer plumage : The whole of the head, including the nape and throat, jet black, contrasting sharply with the neck and lower parts, which, together with the tail coverts and tail, are white ; there are two minute patches of white, one above and one below each eye ; mantle down to the rump, with the wing coverts and tertiaries, pale slate gray ; first five primary quills white crossed near the tip by a bar of black ; first quill also black along most of the outer web ; later primaries gray on the inner web, white on the outer web and tip ; secondaries mostly gray.

Winter : The lower neck becomes white right up to the chin, and the upper part of the head and nape white, streaked with brown black.

Young birds are very differently coloured. The upper plumage to the rump is mottled brown with paler edges to the feathers ; tail coverts and upper part of the tail white ; the end of the tail blackish brown faintly tipped with white ; under parts white, the sides of the neck and upper breast more or less mottled with pale brown ; wing quills dark brown, the secondaries with a narrow, white edge. As the bird grows older the mantle gradually changes to gray.

Bill yellow with a black band halfway between the nostrils and the tip, tip and gape dull crimson ; in young birds the bill is dark horn colour ; iris deep brown ; legs and feet dull yellow.

Length 26 ; wing 19 ; tail 7.5 ; tarsus 3.00 ; bill from gape 3.5. Specimens vary in size, and females are smaller, wing about 18.

*Distribution*.—An occasional storm-driven visitor during the north-east monsoon. Not uncommon in Northern India and parts of Burma, otherwise rare. Breeds in S. Russia and Central Asia, migrating in winter to Southern Asia and North-east Africa.

*Habits*—In Ceylon may be looked for on the coast, during stormy weather, from about November to March.

## 301. LARUS BRUNNICEPHALUS

The Brown-headed Gull (Pl. XVII. Fig. 1.)

*Muhudu-ihiniyā, muthu kaputā*, Sinhalese ; *kadal-kuruvi*, Tamil.

*Larus brunnicephalus* Jerd. Madr. J.L.S. xii. p. 225. (1840) (India) ; *L. brunneicephalus*, Legge p. 1049 ; Oates & Blan. Vol. IV. p. 301.

*Description*.—Adult in summer : The whole of the head and upper neck hooded with brown, which darkens on the nape, contrasting sharply at the point of junction with the white of the lower neck ; the lower parts, rump, and tail also white ; mantle pearl gray ; first five primary quills white at the base with the outer portion black, the amount of black decreasing in length from the first to the fifth quill ; the first and second quills have a large, white patch near the tip ; later primaries mostly gray ; the secondaries the same colour as the mantle.

In winter there is no brown hood, the head being white, mixed with a little brown in front of the eye and behind the ear coverts.

Young birds are mottled brown above, the colour gradually changing to the pearl gray of the adult ; the primaries are largely brownish black ; the outer third of the tail is of the same shade tipped with white.

In adults the bill, eyelids, and feet are coral red ; the iris varies from white to brownish.

In young birds the bill is yellowish red, blackish at the tip ; legs and feet reddish yellow.

Length about 17 ; wing about 13 ; tail 5.25 ; tarsus 2 ; bill from gape 2.25. Females are smaller.

*Distribution*.—Abundant round the coast in the north of the Island from October to April. Rarer in the south, but recorded from Galle, Colombo, and Hambantota. This Gull breeds in Central Asia. In winter it is found all round the coasts of India and Burma ; also inland on large rivers and lakes.

*Habits*.—Occurs generally in flocks, and in Ceylon does not appear to fly inland. Its habits are those of the family.

## 302. LARUS FUSCUS TAIMYRENSIS

The Dark-backed Herring Gull

Vernacular names not recorded.

*Larus affinis taimyrensis* Buturlin, Mess. Orn. 1911. p. 149. (Yenessei) ; not in Legge ; *L. affinis*, Oates & Blan. Vol. IV. p. 304.

*Description*.—Adult in Summer : Head and neck, rump, tail, lower parts and wing-lining white ; mantle and wings slate gray, the larger scapulars and wing-quills with white tips ; larger primaries partly black, in the first primary the visible portion is black with a gray wedge on the

inner web, which extends to near the tip, between the wedge and the white tip is a white band, then a black bar; on the second primary the gray wedge is larger, the rest of the quill is black except for the white tip; on the succeeding primaries the gray continues to increase, the black is reduced to a band adjoining the white tip and finally disappears.

The winter plumage is similar, except that a few brown spots generally appear on the crown and hind-neck.

In young birds, at first, the feathers of the upper parts are brown with broad, whitish edges; wing-quills blackish brown; rump and upper tail coverts white with large, brown markings; tail feathers dark brown with white tips and white mottlings near the base; lower parts at first brownish, then white in the centre and mottled with brown at the sides. In the next stage the back and scapulars are irregularly banded with light brown which turns to gray; from this phase the adult plumage is gradually reached.

Bill in adults yellow, the lower mandible bright red near the tip, gape and eyelids orange red; iris pale yellow, or white; legs and feet pale yellow. In young birds the bill is fleshy white at the base, black at the tip; iris brown; legs grayish flesh colour.

Length about 24; wing 17; tail 7; tarsus 2.75; bill from gape 3. Females a little smaller.

*Distribution*.—The only records in Ceylon are three immature specimens in the Colombo Museum, obtained at Negombo, Hambantota and Beruwela. This sub-species breeds in N. Europe and Siberia, migrating southwards in winter, when it is not uncommon on the N.W. coast of India, but rarely comes as far south as Cape Comorin.

*Habits*.—A fairly tame sea-shore bird in its usual winter haunts frequenting the neighbourhood of towns and fishing villages. Merely a storm-driven straggler to Ceylon.

## Sub-family STERNINAE

### *Terns*

The Terns are among our most pleasing birds, and several of the commoner species are familiar sights round the coast, or on inland tanks. Their wings are very long and pointed, the flight is buoyant and graceful, the birds constantly flying over the surface of the water, into which they dip their bills while on the wing to scoop up their food, chiefly small fish, or little, floating forms of animal life. They seldom alight



on the water, and swim far less than many birds whose toes are not webbed. The bill is straight, or very gently curved, and usually slender, while the mandibles are equal, or nearly equal, in length. The legs and feet are generally small.

The Indian members of the Sub-family are divided into four genera, distinguished, as shown in the key below, chiefly by the shape of the tail, the nature of the webbing between the toes, and the character of the bill. Of the four genera, two—*Hydroprogne* and *Anous*—each give us a single species; *Chlidonias* furnishes us with two, one of which is common on inland waters, the other rare. Of the genus *Sterna*, we have no less than ten authenticated forms. Two of these can be distinguished at once by the colour of their upper plumage, which is sooty brown instead of some shade of pearly gray; the remaining eight have to be differentiated mainly by their wing measurements and the colour of their bills and feet. The gray-mantled forms usually met with are either the three largest, or the two smallest. Of the three medium-sized species, only one—*S. dougalli*—is in any degree common, the other two are rare. Two more species are said to have occurred in Ceylon, but the records are very doubtful.

*Key to Ceylon Sterninae*

- I.—Medium size; wing 8 to 9 inches; webs deeply scalloped between the toes; tail short and only slightly forked. Genus *Chlidonias*.
  - (a) Bill from gape 1·6; in winter the black spots on the crown extend forward of the eyes; in summer the wing-lining remains white.  
*Chlidonias leucopareia indica* (Indian Whiskered Tern).
  - (b) Bill from gape 1·3; in winter the black spots on the crown do not generally extend forward of the eyes; in summer the wing-lining turns black.  
*Chlidonias leucoptera* (White-winged Black Tern).
- II.—Tail forked, but very short; bill powerful; webs fully developed; size large. Genus *Hydroprogne*.
  - (a) Wing 15·5; bill red.  
*Hydroprogne caspia caspia* (Caspian Tern).
- III.—Tail deeply forked, the outer pair of feathers noticeably longer than the rest; bill fairly slender; webs well developed.  
Genus *Sterna*.
  - A.—Back gray.
    - (a) Large size; wing over 11·5 inches; tarsus blackish.

- (1) Bill black ; wing 12·5 inches.  
*Sterna nilotica nilotica* (Gull-billed Tern).
- (2) Bill yellow, under 3 inches ; wing 12 inches.  
*Sterna bengalensis bengalensis* (Smaller Crested Tern).
- (3) Bill yellow, about 3·5 inches ; wing 14 inches, or over.  
*Sterna bergii velox* (Large Crested Tern).

(b) Medium size ; wing 8 to 11·5 inches.

- (1) Bill coral-red in summer, duller in winter, about 2 inches : legs and feet same colour as bill.  
*Sterna hirundo hirundo* (Common Tern).
- (2) Bill black always, about 1·75 inches ; legs and feet blackish.  
*Sterna longipennis* (Nordmann's Tern).
- (3) Bill orange red, black at the tip ; legs and feet scarlet ; outer tail feathers practically all white.  
*Sterna dougalli korustes* (Eastern Roseate Tern).

(c) Small size ; wing about 7 inches.

- (1) In adults shafts of all primaries, in young shaft of first primary, white.  
*Sterna albifrons sinensis* (White-shafted Little Tern).
- (2) Shaft of first three primaries blackish.  
*Sterna albifrons saundersi* (Black-shafted Little Tern).

B.—Back dark brown.

- (a) Wing 10 inches.  
*Sterna anaetheta anaetheta* (Panayan Tern).

- (b) Wing 11·5 inches.  
*Sterna fuscata infuscata* (Indian Sooty Tern).

IV.—Tail not forked, but wedge-shaped ; webs well developed ; plumage dark. Genus *Anous*.

- (a) Size medium ; wing 10·5 inches ; plumage blackish brown.

*Anous stolidus pileatus* (Philippine Noddy).

## 303. CHLIDONIAS LEUCOPAREIA INDICA

## The Indian Whiskered Tern

*Muhudu-lihiniyā*, Sinhalese ; *kadal-kuruvi*, Tamil.

*Virela indica* Stevens, Shaw's Gen. Zool. xiii. i. p. 169. (1832) (Cawnpore) ;

*Hydrochelidon hybrida*, Legge p. 996 ; Oates & Blan. Vol. IV. p. 307.

*Description*.—Summer : A black cap on the forehead, crown, and nape ; below this a white streak runs from the gape of the bill to the nape ; upper parts ashy gray ; chin white to pale gray, gradually darkening through slate gray on the breast to sooty black on the abdomen and flanks ; vent, under tail coverts, and wing-lining white ; primaries in fresh plumage frosted, otherwise darker than the gray of the upper plumage.

Winter : Upper parts lighter gray than in summer ; all the lower parts, including the wing-lining, white ; the forehead is white, the crown white with streaky, black spots, beginning at a point a little forward of the eye and increasing on the nape, which is bordered behind by a more or less imperfect, white collar.

Young birds are mottled brown on the crown and mantle, the plumage gradually changing towards the gray of the adult.

Bill blood red ; iris brown ; legs and feet dull red ; claws black.

Length 10 ; wing 8·75 ; tail 3·25 ; tarsus 0·9 ; bill from gape 1·6.

*Distribution*.—Common all round the coast, also on marshes, tanks, and paddy fields inland, chiefly in the northern half of the Island. Abundant throughout India and Burma. Birds in the southern part of their range appear to be mainly, if not wholly, migrant. Allied sub-species occur throughout temperate Europe, all Africa, Southern Asia and Australia.

*Habits*.—Found more in marshes, paddy fields, and round tanks, or lagoons, than by the open coast. Like Gulls in England they often follow the plough. Many of our birds are migrants, seen only during the north-east monsoon. Some birds stay, chiefly immature individuals in winter dress, but others are in full summer plumage, so that the nest and eggs may yet be found in Ceylon. The birds breed in colonies on beds of water-lilies, or other floating plants in large swamps ; the nest is a fairly large structure of reeds, or straw. The eggs are generally three, pale olive, or greenish, with blotches of purplish gray and brown. Average size about 1·50 by 1·10.

## 304. CHLIDONIAS LEUCOPTERA

## The White-winged Black Tern

*Muhudu-lihiniyā*, Sinhalese ; *kadal-kuruvi*, Tamil.

*Sterna leucoptera* Temm. Man. d'Orn. p. 483. (1815) (Mediterranean) ;

*Hydrochelidon leucoptera*, Legge p. 1000 ; Oates & Blan. Vol. IV. p. 308

*Description*.—In winter plumage closely resembles the previous species, but is slightly smaller; the bill is smaller and darker, and on examination of the series in the British Museum the forepart of the head appears to be whiter, the black spots of the crown seldom coming further forward than the eye. In summer the species is at once recognizable, as the head and neck, the back, and the under parts as far as the vent, together with the wing-lining, are black. The coverts on the edge of the wing are white, as are the rump and the upper and lower tail coverts; tertiaries dark gray; remainder of wing lighter gray, except for the first few primaries, which are often sooty brown, where the frosting has worn off.

Young birds are mottled with dark brown on the crown and mantle, and have whitish upper tail coverts.

Bill livid red in summer; blackish red in winter; iris dark brown; legs vermillion.

Length 9.5; wing 8.25; tail 2.8; tarsus .75; bill from gape 1.3.

*Distribution*.—Until recently only a few specimens have been recorded from Ceylon, but in April, 1914, at Polonnaruwa and Minneri in the North-Central Province, and in April, 1915, near Hambantota, I found a fair number of specimens flying among flocks of the previous species. At that time of year the birds were changing to summer dress, and the black wing-lining at once betrayed them. It is possible that being migrants, and almost indistinguishable from the Whiskered Tern in their winter dress, they often pass unnoticed. The species is common in certain localities in Burma, but extremely rare in India west of the Bay of Bengal. It ranges through temperate Europe and Asia in summer, wintering southwards from Africa to Australia.

*Habits*.—Those of the last species, with which it associates. As it has been obtained in the Island in May, July, and October, it is quite possible that if ever the Whiskered Tern is found breeding in Ceylon, this species may be found nesting in the same colony. The eggs are very similar, but slightly smaller and darker.

### 305. HYDROPROGNE CASPIA CASPIA

#### The Caspian Tern

*Muhudu-kihiniyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna caspia* Pall. Nov. Com. Acad. Petro. xiv. i. p. 582 (1770) (Caspian); Legge p. 1003; *Hydroprogne caspia*, Oates & Blan. Vol. IV. p. 309.

*Description*.—Summer: The forehead, crown, and nape glossy green black; remainder of the upper parts and the wings pearl gray; primaries, when fresh, frosted, getting darker as the frosting wears off; rump and tail pale gray; entire under plumage white.

In winter the black cap becomes white, thickly streaked with black, and behind it is a white collar.

Young birds resemble adults in winter dress, but have more black round the eye; the mantle and tail are mottled and barred with rusty black, and the primary quills black frosted with gray.

Bill stout, coral red; iris dark brown; legs and feet black.

Length 20; wing 15.5; tail 5.5; depth of fork 1.25; bill from gape 3.5.

*Distribution*.—Fairly common on the north coast during the north-east monsoon; rarer elsewhere. A few birds remain in the north to breed. This sub-species is found locally in many parts of India and Burma. Allied races occur throughout the whole of the Old World, except in the extreme north, also in North America and Australasia.

*Habits*.—Found in Ceylon chiefly on lagoons near the coast. When fishing it flies with its large bill pointing downwards, and covers its beat with a regular and powerful flight. Mr. H. Parker found a few birds breeding in June on sand banks off the island of Mannar. One or two eggs were laid in shallow hollows scratched in the sand. Colour grayish white with markings of grayish purple and dark brown; average size 2.43 by 1.70.

### 306. STERNA NILOTICA NILOTICA

#### The Gull-billed Tern

*Muhudu-lihinīyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna nilotica* Gmel. S. N. i. p. 606. (1789) (Egypt); *S. anglica*, Legge p. 1011; Oates & Blan. Vol. IV. p. 311.

*Description*.—Summer: A black cap on the head from the forehead to the nape, coming as far down as the lower edge of the eye; nape crested; remainder of upper plumage pearl gray; wing quills frosted when fresh, smoky brown as the frosting wears off; lower parts, including wing-lining, white.

In winter the black cap becomes white streaked with black, otherwise there is no change.

Young birds are gray, or gray and white on the crown, and the primaries are usually darker. Very young birds are partly brown on the back.

Bill black; legs and feet black, sometimes tinged reddish; iris hazel brown.

Length 15; wing 12.5; tail 5.25; depth of fork 1.5; tarsus 1.4; bill from gape 2.

*Distribution*.—Common during the north-east monsoon on lagoons and estuaries from Mannar round through Trincomalee to Hambantota; rare on the west and south-west coast; occasionally found inland on the

larger tanks. Common in winter throughout India, and found on the coast in Burma. This sub-species ranges from Europe and N. Africa to Central Asia and India.

*Habits*.—Frequents sheets of fresh water and brackish lagoons rather than the open coast. Most of our birds are migrant, but some remain all the year. The majority of these are immature specimens in winter plumage, but some, as Capt. Legge noticed, were in breeding dress, so a look out may be kept for breeding birds. The eggs are of the usual type, and measure about 2 by 1.46.

### 307. STERNA BENGALENSIS BENGALENSIS.

#### The Smaller Crested Tern

*Muhudu-lihiniyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna bengalensis* Less. *Traite d' Orn.* p. 621 (1831) (Indian Coast); *S. media*, Legge p. 130; Oates & Blan. Vol. IV. p. 313.

*Description*.—Summer: A black cap from the forehead to the nape coming as far down as the lower edge of the eye; the crest also is jet black; back, wings, and tail pearl gray; lower parts and a collar round the neck white; outer tail feathers sometimes whitish; primary quills, when fresh, frosted silver gray on the outer web; the inner webs brownish gray near the shaft, otherwise white.

In winter the nape and a band from it to the front of the eye remain black; the feathers of the crown are black with white borders; the forehead and lores are white.

Young birds bear the winter dress of adults, with some brown on the lesser wing coverts, the tertiaries, and tail.

Bill yellow; iris brown; legs and feet black, the soles pale yellow.

Length about 16.5, less in winter plumage, when the tail is shorter; wing 12; tail in summer 6.75, in winter may be only 5; depth of fork 2.3; tarsus 1.00; bill from gape 2.8.

*Distribution*.—Common all round the coast during the north-east monsoon. A migrant form common in winter on the W. coast of India, and from the western shores of the Indian Ocean to the Mediterranean. It breeds on sand banks in the Persian Gulf and Red Sea. An allied sub-species is found further East and is distinguished by its slightly larger size and paler colour.

*Habits*.—This Tern frequents lagoons and sheets of open water near the sea as well as the open coast, but it never goes far inland. It often associates in large flocks, and may be met with several miles out at sea.

**308. STERNA BERGII VELOX****The Arabian Large Crested Tern**

*Muhudu-lihiniyā*, Sinhalese ; *kadal-kuruvi*, Tamil.

*Sterna velox* Cretzschmar. Rupp. Atl. p. 21 (1826) (Red Sea Coast); *S. bergii*, Legge p. 1026; Oates & Blan. Vol. IV. p. 214.

*Description*.—Though this bird may be distinguished by its larger size, the coloration is the same as in the last species, save that the forehead is white in summer and the crest more distinct, and that at all seasons the mantle is much darker gray with a smoky brown tinge.

Young birds have a good deal of brown on the upper parts, and the wing quills are mostly brown.

Bill pale yellow ; iris dark brown ; legs and feet black, tinged at times with red ; soles yellowish.

Length about 21; wing 14·5; tail 6·5 to 8; tarsus 1·3; bill from gape 3·6.

*Distribution*.—Found all round the coast, especially during rough weather. Fairly common round the coast of India ; rarer in Burma. The species is found from the west coast of South Africa, along the shores of the Indian Ocean, to Polynesia and the China Sea. The race found on the shores of Ceylon ranges N.W. to the Persian Gulf and Red Sea.

*Habits*.—A maritime species, which may often be seen in fine weather fishing miles out at sea. Rough weather drives it to the shore, but it seldom goes inland. It has been found breeding in June on sandbanks between Mannar and India, and at the end of April on rocks off the S. Coast. Generally only one egg is laid. The shape is a long oval pointed at the narrow end. The ground colour is generally grayish white, but may occasionally be pale fawn, or salmon. The markings vary from blotches to scrawls of sepia brown, with under marks of purplish gray. Average size of a fair series 2·41 by 1·69.

**309. STERNA HIRUNDO HIRUNDO****The Common Tern**

*Muhudu-lihiniyā*, Sinhalese ; *kadal-kuruvi*, Tamil.

*Sterna hirundo* Linn. S. N. i. p. 137. (1758) (Sweden); *S. fluviatilis*, Legge p. 1015; Oates & Blan. Vol. IV. p. 318.

*Description*.—Summer : A black cap from the forehead to the nape, extending down the side of the head to the lower edge of the eye ; back and wings ashy gray ; the first primary has the outer web black and the portion of the inner web next the quill blackish, the remainder of the inner web white ; the black decreases on the second and inner primaries ; rump, upper tail coverts, and the inner webs of the tail feathers

white; the outer webs of the tail feathers gray; lower lores, cheeks, chin, throat, wing-lining, and under tail coverts white, or nearly white; breast and abdomen pale vinous gray.

In winter the forehead is white, or mottled, and the crown streaked with black; lower parts whitish.

Immature birds have a whitish forehead, a sooty black nape, a dirty white collar round the neck, and a dark gray band along the wing coverts. Very young birds are also mottled on the mantle.

Bill, of adult, coral red in summer, duller in winter; young birds have a blackish bill; iris brown; legs and feet the same colour as the bill.

Length 14; wing 10.5; tail 6.5; depth of fork 3.5; tarsus .8; bill from gape 2.

*Distribution*.—An occasional migrant during the north-east monsoon to Ceylon and India, most of the birds being immature. Found throughout the temperate parts of Europe, Asia, and North America. An allied sub-species occurs in Tibet and the Himalayas.

*Habits*.—Similar to those of the Gull-billed Tern. It is only occasionally seen in Ceylon, but in October, 1874, Capt. Legge found it plentiful near Trincomalee.

### 310. STERNA LONGIPENNIS

#### Nordmann's Tern

*Muhudu-lihiniyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna longipennis* Nordm. in Erman's Reise. p. 17. (1835) (Ochotsk); not in Legge; Oates & Blan. Vol. IV. p. 319.

*Description*.—Similar to that of *S. hirundo hirundo* save that the bill and feet are always blackish and slightly smaller, the bill in the present species being only 1.75 from the gape as against 2.

*Distribution*.—One example shot by Capt. Legge at Trincomalee in June, and classified by him as *S. fluviatilis*, is now in the British Museum and has been assigned to the present species, which ranges from North-eastern Asia to New Guinea, and has been obtained in the Malay Peninsula.

### 311. STERNA DOUGALLI KORUSTES

#### The Eastern Rosy Tern

*Muhudu-lihiniyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna korustes* Hume, Str. Feath. ii. p. 318. (1874) (Andamans); *S. dougalli*, Legge p. 1033; Oates & Blan. Vol. IV. p. 319.

*Description*.—Summer: A black cap from the bill to the upper part of the hind neck coming down the sides of the head to the lower edge of the eye; remainder of the hind neck white, shading into the



pearl gray of the upper plumage ; primary quills a little darker with some black ; all the primaries and secondaries have a white inner border ; tail a little paler than the back ; the long outer tail feathers almost white throughout ; under parts white with a roseate tinge.

In winter the top of the head forward of the eyes is white with black spots, while the rosy hue almost disappears from the under parts. Immature birds resemble adults in winter, but the black cap is tinged with brown ; the upper parts are white banded with brown, and the darker parts of the primaries are dark gray instead of black.

Bill in summer orange red at the base, remainder black, in winter almost all black ; iris dark brown ; legs and feet coral red, or scarlet.

Length about 15; wing 8.75; tail 5.5 to 7.5; depth of fork 4 to 5; tarsus .85 ; bill from gape 1.90.

*Distribution*.—Occasionally seen in fairly large numbers at various points on the coast. Occurs in the Andamans, but scarcely anywhere else on the Indian coast. Allied sub-species are found all along the temperate and tropical shores of the Atlantic and round parts of the Indian Ocean.

*Habits*.—A Sea Tern rarely seen inland and seldom even haunting lagoons. Parker once found a colony nesting in June on sand-banks in the Gulf of Mannar and I know of a large colony which nests regularly at the end of April on an islet off the coast of the Southern Province. The nest is a mere shallow scratch in the sand. The eggs are oval, slightly pointed at the narrow end. There are generally two, very rarely three. The ground colour varies from pale grayish, or greenish stone to a fairly deep brown. The markings consist of blotches of dark brown and purplish gray. Average size of a good series 1.59 by 1.15.

### 312. STERNA ALBIFRONS SINENSIS

The White-shafted Little Tern (Pl. XVII. Fig. 3.)

*Muhudu-likiniyā*, Sinhalese ; *kadal-kuruvi*, Tamil.

*Sterna sinensis* Gmel. S.N. i. p. 605 (1789) (China) ; Legge p. 1019; Oates & Blan. Vol. IV. p. 320.

*Description*.—Summer: An arrow-shaped, white patch on the forehead running back to above the eye ; below this a black band from the bill to the eye ; the crown down to the lower edge of the eye and the nape black ; upper plumage pearl gray, darker on the wings, and paling to white, or whitish gray on the upper tail coverts and tail ; the outer web and half the inner web of the first two primaries black, or dark gray, the quill shafts and the inner half of these feathers white ; under plumage white, sometimes tinged with gray.

In winter the white patch on the forehead is broader and the tail shorter.

Young birds on the crown are grayish streaked with black, which increases towards maturity; the black band from the bill to the eye is wanting, and the primaries are grayer; only the shaft of the first primary is white, those of the later primaries are grayish, or brownish.

Bill in summer yellow with a black tip, in winter brown; iris hazel brown; legs and feet in summer orange yellow, in winter dusky yellow.

Length about 10, when the tail is fully developed; wing 7; tail 3.5 to 5.5, depth of fork 2 to 3.4; tarsus .65; bill from gape 1.7.

*Distribution*.—Common round the coast of the dry zone, rare on the west coast south of Puttalam. Found on the east coast of India and in Burma, extending eastwards to Japan and south-east to Australia. Ceylon would appear to be the western limit of this sub-species.

*Habits*.—Occurs on the open coast and on lagoons near the sea. During the breeding season some birds move inland to breed on the shores of large tanks, such as Minneri, where the water is not choked with weeds and the shores are gravelly. It also breeds on the sandy shores of lagoons. The breeding season extends from the beginning of May to August. The nest is a shallow depression in gravel, or sand, with little, or no lining. Two or three eggs are laid. They are rather broad ovals, pointed at the narrow end. The ground colour varies from pale grayish, or greenish stone to a brownish buff. The markings are irregular blotches of deep brown and inky gray. Average size of a good series 1.29 by .96.

### 313. STERNA ALBIFRONS SAUNDERSI

#### The Black-shafted Little Tern

*Muhudu-lihiniyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna saundersi* Hume, S. F. v. p. 324-326 (1877) (Karachi); Legge p. 1023; Oates & Blan. Vol. IV. p. 321.

*Description*.—Similar to that of the last form, but slightly smaller; the shafts of the first three wing quills are dusky brown, or black, whereas in *S. albifrons sinensis* the first quill shaft is clear white; the mantle is paler, and the tail grayer; the bill is more slender, and even less slightly curved.

Length about 8.5; wing 6.75; tail up to 3.0; depth of fork 1.0; tarsus .6; bill from gape 1.6.

*Distribution*.—Not so common as the last sub-species, but more widely distributed round the coast. It ranges from Ceylon to the coasts of Sind and Mekran, where it breeds. Its status is a little uncertain. If Legge's surmise that it breeds in Ceylon is correct, it should be treated as a true species.

*Habits*.—Similar to those of the last sub-species. Legge was of the opinion that he found it breeding along with the White-shafted Little Tern in June, but was not able to identify any nests with certainty. The eggs resemble those of the White-shafted Little Tern, but are said to be slightly longer and narrower.

### 314. STERNA ANAETHETA ANAETHETA

#### The Panayan Tern

*Muhudu-lihiniyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna anaethetus* Scop. del Flor. et Faun. Insubr. ii. p. 92 (1786) (Panay); *S. anaetheta*. Legge p. 1040; Oates & Blan. Vol. IV. p. 323.

*Description*.—A white, arrowhead patch on the forehead extending above the eyes and bordered below by a black band from the eye to the bill; the crown, nape, and sides of the head behind the eyes black; hind neck grayish white; rest of upper parts dark grayish brown; primaries darker brown than the back, with some whitish gray on the inner webs; the long outside pair of tail feathers white, darkening to gray brown on the inner webs towards the tip; cheeks and lower parts white, with a sooty tinge on the breast, abdomen, and flanks. In winter for a short while the feathers of the lores and crown are mottled with white.

Immature birds are whiter on the head, the feathers on the back are grayer with whitish edges, and there is less white on the outer pair of tail feathers.

Bill, legs, and feet black; iris deep brown.

Length 14·5; wing 10; tail 6 to 7, depth of fork 3 to 4; tarsus ·8; bill from gape 2.

*Distribution*.—Numerous on the coast at intervals, especially after high winds; found all round the Indian and Burmese coasts and on the outlying islands. The sub-species ranges from Japan to Ceylon, and is replaced on the West Coast of India by another sub-species.

*Habits*.—An oceanic form, often seen far from land, and breeding on islands. During high winds the birds appear on shore, probably having been driven by the weather from the open sea.

### 315. STERNA FUSCATA INFUSCATA

#### The Indian Sooty Tern

*Muhudu-lihiniyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna infuscata* Licht. Verv. Doubl. Mus. Berlin. p. 81 (1823) (India); *S. fuliginosa*, Legge p. 1036; Oates & Blan. Vol. IV. p. 324.

*Description*.—Similar to that of the last species, but larger and darker; the white, arrow-shaped patch on the forehead is broader, but

does not run so far back, stopping above the middle of the eye, while the black stripe in front of the eye runs down more obliquely to near the gape of the bill; upper plumage sooty black, the lower parts white with a grayish tinge on the abdomen and lower tail coverts. In winter the lores and crown become flecked with white.

Immature birds are sooty brown above, the feathers with white tips, which are broadest on the wing coverts and tertiaries; the under parts are slightly paler brown than the upper plumage, the vent being grayish.

Bill, legs, and feet black; iris almost black.

Length 17; wing 11.5; tail 6.5 to 7.5; depth of fork 3.5 to 4.5; tarsus .9; bill from gape 2.3.

*Distribution*.—This Tern ranges over the Indian Ocean from the Laccadives to the Malay Archipelago. Allied races are found throughout the Tropics. It is even more of an oceanic species than the Panayan Tern, and seldom comes ashore except after rough weather. Several specimens have been recorded from the west coast of Ceylon, while in Nov. 1922 a bird was obtained at Bogawantalawa, 60 miles inland and over 4,000 ft. in the hills.

### 316. ANOUS STOLIDUS PILEATUS

The Philippine Noddy Pl. XVII. Fig. 2.

*Muhudu-lihiniyā*, Sinhalese; *kadal-kuruvi*, Tamil.

*Sterna pileata* Scop. del Flor. et. Faun. Insub. ii. p. 92 (1786) (Philippines); *Anous stolidus*, Legge p. 1043; Oates & Blan. Vol. IV. p. 325.

*Description*.—Forehead and crown pale gray, passing through gray brown on the nape into the dark smoky brown of the upper and lower parts; lores black, gradually paling into lead brown on the cheeks and throat; wing quills and tail feathers darker than the body.

Immature birds are paler brown, with a grayish brown forehead and neck.

Bill black; iris deep brown; legs and feet dark flesh colour, or reddish brown, the webs paler.

Length 16; wing 10.5; tail 6; tarsus 1.0; bill from gape 2.3.

*Distribution*.—An oceanic bird, occasionally seen on the seas round Ceylon. Several specimens have been obtained near Colombo. It also occurs in the Bay of Bengal, and breeds on the Laccadives in February. The species ranges all round the Tropics; the present sub-species extends from Japan to the Laccadives.

[*Note*.—Two more species of Tern are said by early writers to have occurred in Ceylon, but their occurrence is very doubtful, and the records are probably a mistake for the two species of *Chlidonias*. They are

both fresh-water Terns found in India on the larger rivers and the tanks and marshes in their vicinity. They may be distinguished by their orange bills from any other species likely to be seen inland in Ceylon, and the only likely places for their appearance are the broad, sandy reaches of the lower Mahaweli Ganga and the adjoining marshes.

The two species are : *Sterna seena* Sykes, with a wing-measurement of 11, a fairly stout bill and pale gray lower parts ; and *Sterna melanogaster* Temminck, with a wing-measurement of 9, a more slender bill and lower parts which are white in the off-season, but black from the breast downwards in breeding plumage. I give below their description in case any one comes across them.

***Sterna seena.* The Indian River Tern.**

*Description.*—Summer : A cap of glossy greenish black on the head from the forehead to the nape, extending down the side of the head to a little way below the eyes ; a small, white patch under each eye ; remainder of upper plumage dark pearl gray, becoming paler on the rump and tail ; wing quills in fresh plumage frosted white on the outer webs ; under parts and wing-lining delicate pale gray, which passes into white at the line of junction with the black cap and on the under tail coverts. In winter, after the moult, the forehead becomes dull white, the crown gray ; the crown then gradually passes through a streaky black stage into the full summer plumage.

In the young the feathers of the upper parts are smoky gray with a brown inner and a whitish buff outer border.

Bill in summer orange ; iris brown ; legs orange red. In winter plumage the bill and legs are duller.

Length 15 to 18 ; wing 11 ; tail 6 to 9.5 ; depth of fork 5 to 6 ; tarsus .8 ; bill from gape 2.3.

***Sterna melanogaster.* The Black-bellied Tern.**

*Description.*—Summer : The forehead, crown, and nape down to the lower edge of the eye black ; the lores, chin, cheeks, and throat white, or nearly white ; the upper parts ashy gray with a brown tinge on the wings ; the wing quills have the usual frosting, becoming dusky brown where it has worn off ; the tail is paler than the back ; the outer web of the outer tail feathers is white ; lower neck pale gray, passing on the breast through chocolate to black, which continues from the lower breast to the tail coverts ; wing-lining white.

In winter the lower parts are white, and the cap white streaked with black.

Half-grown birds are mottled with brown and buff on the upper parts.

Bill orange yellow ; iris brown ; legs and feet orange red.

Length 13 ; wing 9 ; tail 5 ; depth of fork 3·5 ; tarsus ·55 ; bill from gape 1·8.]

### Family STERCORARIIDAE

#### *Skuas*

As stated in my remarks on the Order the chief external differences between the Skuas and Gulls lie in the bill and claws. The bill of the Skua has a well developed, horny cere extending for over half its length, while the tip of the bill is sharply hooked. The hind toe is small, the front toes are long and fully webbed, the claws are very curved and sharp. The wing is long and pointed, the tail longish and rounded, the two middle tail feathers in most species are noticeably longer than the others.

The Skuas are marine birds with piratical habits. They obtain their living chiefly by chasing other sea-birds on the wing, forcing them to drop any food they may have secured, and bearing off the booty thus relinquished. They also harry breeding colonies of sea-birds, stealing the eggs and fledglings. The powerful Antarctic Skua in its summer haunts is said to live largely on Petrels.

Skuas breed in the cold regions of both the Northern and Southern Hemispheres. At other times some species range far into the Tropics. The Pomatorhine Skua is a Northern species which in winter has been found as far South as Australia and S. Africa. The Antarctic Skua is not usually a wanderer to the Tropics and the records of four specimens from Ceylon are curious, especially since one has been identified at the British Museum as belonging to the most southerly form—*Stercorarius antarcticus maccormickii*.

The first specimen was brought alive to Legge in Oct. 1875 with its wing clipped (*Vide* Legge, Birds of Ceylon p. 1050). It was said to have been caught a few weeks previously on the brackish canal which threads the lagoons between Negombo and Chilaw. Under such circumstances Legge hesitated to accept the record, but kept the bird, which appears to have been a lightish specimen, and took it home to the Zoological Gardens, probably the London Zoo, where it eventually escaped.

Since then three more specimens have been obtained. Two of these were stuffed and for many years have been in the Colombo Museum. One was a light form and the other dark, but unfortunately the labels had been mislaid and the data for the two birds were thus mixed and uncertain.

However I have found in the "Taprobanian" Magazine for June, 1886 p. 132, a description of the two birds which makes it clear that the paler specimen was obtained by the Light-house keeper at Foul Point, an isolated spot on the South side of the outer bay at Trincomalie. The printed Museum Catalogue further states that "No. 313"—the Trincomalie specimen—was caught in an exhausted state on the beach in a storm during the N.E. Monsoon. The year is not given, but must have been between 1877 when Legge left Ceylon (otherwise it would have been recorded in his book) and Oct. 1885 when the dark specimen was shot, apparently between Chilaw and Negombo, and added to the Museum Collection. Since then a third, dark bird was obtained on 22nd Sept., 1907, at Kalutara 25 miles S. of Colombo. The skin, in a very bad state of preservation, is now in the Colombo Museum.

The Trincomalie specimen was lately sent home to the British Museum for identification and is pronounced to be *S. antarcticus maccormickii*. It seems however to be a genuine storm-driven waif to our shores, and I think the record may be accepted. The other two skins in the Museum are much darker and agree with the description of typical *S. antarcticus*. Both forms are a long way north of their usual beat, but it must be remembered that there is open ocean between Ceylon and the Antarctic ice and that many stray, oceanic wanderers of other Families have arrived on our shores. Further, few if any ships call at Ceylon from regions S. of Australia.

#### *Key to Ceylon Stercorariidae*

- A. Stout in build; bill deep and heavy; wing 15, or more; central tail feathers scarcely longer than the next pair.
  1. Darker; upper and under surfaces sooty brown.  
*Stercorarius antarcticus antarcticus* (Antarctic Skua).
  2. Paler; head, neck and under surface clay brown; feathers of hind-neck tinged with straw yellow.  
*S. antarcticus maccormickii* (Mc Cormick's Skua).
- B. Slimmer in build; bill more slender; wing about 14; central pair of tail feathers projecting noticeably beyond the others.
  1. Central tail feathers rounded.  
*S. pomarinus* (Pomatorhine Skua).

### 317. STERCORARIUS ANTARCTICUS ANTARCTICUS

#### The Antarctic Skua

Vernacular names not recorded.

*Lestris antarcticus* Lessing, Traite d'Orn. p. 616. (1831); *Stercorarius antarcticus*, Legge p. 1050, footnote; Oates & Blan. Vol. IV. p. 330, Note.

*Description*.—General colour of whole plumage dark sooty brown; the feathers on the crown, hind neck and upper back slightly tinged with rufous and with paler shaft streaks; wing and tail quills almost black, but with pale shafts, the concealed, basal portions of the primary quills white.

Iris dark brown; bill and legs black.

Length about 23; wing 15 to 16; tail 6.5; tarsus 3; bill from gape 2.75 and in depth 1.

*Distribution*.—There are two specimens in the Museum, as stated in my remarks on the family; one from Kalutara and one from near Chilaw. The usual range of this sub-species is the Southern Atlantic and Pacific as far N. as Norfolk Island, the west Coast of Australia and the Cape of Good Hope.

### 318. STERCORARIUS ANTARCTICUS MACCORMICKII

#### Mc Cormick's Skua

Vernacular names not recorded.

*Stercorarius maccormickii* Saunders. Bull. B. O. Club. Vol. III. p. xii. (1893) Possession Island; neither in Legge, nor Oates & Blan.

*Description*.—Similar to the last sub-species, but much paler, the general effect being almost greyish brown. In adults the feathers of the nape and neck are strongly tinged with straw yellow, and the breast tinged likewise, but not so strongly; the wing quills, abdomen and tail are rather darker than the rest of the plumage. In an immature specimen in the Colombo Museum the yellow tinge on the head, neck and breast is absent, but these parts are faintly mottled with whitish brown. Iris dark brown; bill blackish; legs and feet black.

Length about 22; wing 15.5; tail 6.5; tarsus 3; bill from gape 2.75.

*Distribution*.—As stated in my remarks on the Family there is a specimen in the Museum taken near Trincomalee, while the specimen mentioned by Legge, from the description, would appear to have belonged to this form. Its usual head-quarters are in the Antarctic, and it seldom appears N. of Heard Island.

### 319. STERCORARIUS POMARINUS

#### The Pomatorhine Skua

Vernacular names not recorded.

*Lestris pomarinus* Temm. Man d'Orn. p. 514. (1815) (Holland); not in Legge; *Stercorarius pomatorhinus*, Oates & Blan. Vol. IV. p. 330.

*Description*.—Adult. Forehead, cheeks and crown sooty black; a white collar, edged with straw yellow, round the neck; lower neck



blackish, the feathers often tipped with gray ; upper breast white barred with black ; lower breast dull white ; abdomen, flanks, lower tail coverts, mantle, wings, tail coverts and tail umber brown, the primary wing quills with some white on the concealed, basal portion. The middle tail feathers are rounded and have a vertical twist.

An immature bird in the Colombo Museum is marked as follows. Crown and nape slightly streaky dull brown ; hind neck and upper back barred with dull white, the neck feathers tinged with straw yellow ; back, wings and tail dark brown ; primary quills lighter brown with whitish shafts and the basal portion of the inner webs white ; rump and upper tail coverts barred with white ; chin, throat and upper breast dull brown rather indistinctly barred with white ; centre of lower breast and abdomen almost unbarred white ; the sides of the breast and of the abdomen, the flanks, lower tail coverts and wing-lining brown fairly boldly barred with white.

Iris brown ; bill brown ; legs and feet blackish.

Length about 21 ; wing 14 ; tail without central feathers 5.25 ; the central feathers 2 to 4 inches longer ; tarsus 2.10 ; bill from gape 2.

*Distribution.*—There is a single specimen in the Colombo Museum, taken at Colombo in 1912. The only other record from Indian seas is a bird obtained at Moulmein. The species breeds within the Arctic circle, but ranges widely in winter and has been recorded from Australia, S. Africa and Peru.

## Order XVII. STEGANOPODES

### *Pelicans, Cormorants, &c.*

Birds of the present Order are readily distinguished by having all four toes webbed, the hallux, or hind toe, which is long, being turned inwards and forwards and connected with the three front toes. In their structure the *Steganopodes* show a connection with the Birds of Prey, and differ widely from the Gulls and Waders. Their nestlings when hatched are helpless, and remain for some time in downy plumage, during which stage they are fed by their parents.

The five Families into which the Order is divided differ considerably in outward appearance, but all are fish feeders. The Pelicans and Cormorants are found equally on inland waters and round the coast; the Frigate Birds, Gannets, and Tropic Birds are marine, and mainly oceanic.

The families may be differentiated as follows:—

- 1.—Tail rounded; bill long, flattened, and provided underneath with an enormous pouch.

*Pelecanidae* (Pelicans).

- 2.—Tail forked; the web between the toes deeply scalloped; bill straight and sharply hooked at the tip.

*Fregatidae* (Frigate Birds).

- 3.—Tail rounded, the feathers very stiff; bill slender, either hooked, or pointed; plumage mainly black.

*Phalacrocoracidae* (Cormorants and Darters).

- 4.—Tail long and wedge-shaped; bill stout and pointed; nostrils almost invisible externally.

*Sulidae* (Gannets).

- 5.—Tail long, the central feathers greatly exceeding the rest; bill stout and pointed, the nostrils plainly visible.

*Phaethontidae* (Tropic Birds).

### Family PELECANIDAE

#### *Pelicans*

The Pelicans are a familiar group of large birds with enormous bills, which are adapted for fishing. The upper mandible is very long and

flattened, and terminates in a strong "dertrum," or nail, at the tip. At each side, running down the length of the bill, there is a narrow groove from the nostrils, which are very small and placed at the base. The lower mandible is a mere flexible, pointed arch, forming a rim to the large pouch of naked skin, which is used as a net to scoop up fish. The wings are long and ample. Pelicans are found in warm climates all round the world, frequenting marshes, rivers, lagoons, or sometimes the sea. They can both fly and swim well, but do not dive, and are bad walkers, not often seen on land. Only one species is found in Ceylon.

### 320. PELECANUS PHILIPPENSIS

#### The Spotted-billed Pelican

*Pas-boruwā*, *pas-bārā*, Sinhalese; *kule-kedai*, Tamil.

*Pelecanus philippensis* Gmel. S. N. i. p. 571 (1789) (Philippines); *P. philippinensis*, Legge p. 1198; *P. philippensis*, Oates & Blan. Vol. IV. p. 335.

*Description*.—Breeding plumage: mainly white, the feathers of the crown and neck short and rather fluffy, with dark bases; there is a slight crest and a sort of mane, brownish in colour, down the hind-neck; the scapulars and feathers of the wing coverts and upper tail coverts have black shafts; the lower back, flanks, vent, and lower tail coverts are tinged vinaceous pink; primaries and primary coverts dark brown; outer half of secondaries brown; tail lighter brown, the feathers white at the base.

Adults out of breeding plumage and immature birds lack the rosy tint on the lower back, flanks, and lower tail coverts; feathers of the head and neck white with black bases; wings and tail brown; under parts whitish brown; lesser wing coverts short, instead of being long and pointed.

Bill flesh coloured, with bluish spots on the sides of the upper mandible; pouch dull purple with bluish black markings; iris pale yellow, or almost white; legs and feet dark brown.

Length 57; wing 22; tail 8; tarsus 3.5; bill from gape 14. Females slightly smaller.

*Distribution*.—Found wherever there are suitable sheets of water throughout the north and east of the Island as far south as Hambantota. Occurs in similar places all over India, Burma, and the East.

*Habits*.—This species is found often in large flocks on brackish lagoons and large tanks, but is commoner near the sea than far inland. It breeds from about December to March, building a large, stick nest in high trees. It generally lays three chalky white eggs measuring about 3 by 2.15.

## Family FREGATIDAE

*Frigate-Birds*

These are oceanic birds of dark plumage, whose enormously long, pointed wings and slender build give them a power and speed of flight unsurpassed even by the Albatross. The bill is long and sharply hooked at the tip; the upper mandible is flattened; the nostrils are situated near the base of the bill; the nasal grooves are well marked, and run to the nail at the tip. The chin is naked and pouched, the tarsus very short and feathered, the web between the toes deeply scalloped and the tail deeply forked. The birds obtain their food while on the wing, largely like the Skuas, by chasing Gulls and other sea birds and forcing them to drop their catch, but also by capturing Flying Fish, or by swooping down on such fish, crustaceans, and young turtles as show themselves on the surface of the water. The various species range over the tropical seas and breed on oceanic islands, constructing a stick nest resting on rocks, or in bushes. They lay one or two pure white eggs.

The Family has recently been worked out by Mathews, and three species appear to frequent the Indian Ocean: *F. andrewsi*, a large form with a bill generally over five inches in length, and two smaller species in which the bill is well under five inches—*F. minor* and *F. ariel*.

In *F. minor* the adult male appears to be black all over and the female black with a white belly. In *F. ariel* the adult male is black with a white splash on the flanks; the female appears to be black with a large area of white on the belly, extending in a bar up the flanks, and a rufous collar round the hind neck. Unfortunately I have not been able personally to consult Matthew's "Birds of Australia," but, so far as I can determine, the only smaller Frigate-Birds in the Colombo Museum, three skins, appear to belong to *F. ariel*. It is possible however that specimens of *F. minor aldabrensis*, which occurs in the Western Indian Ocean may eventually be recorded from Ceylon. Immature birds of all species have rather rusty, dark brown backs, with a lighter bar formed by the lesser and median wing coverts, and a white head and neck.

*Key to Ceylon Frigateidae*

- A.—Bill from gape 4·5 or more; wing about 24.  
*Fregata andrewsi* (Christmas Island-Frigate Bird)
- B. Bill from gape under 4·5; wing about 20.  
*Fregata ariel iredalei* (Iredale's Frigate-Bird).

**321. FREGATA ANDREWSI****The Christmas Island Frigate-Bird**

Vernacular names not recorded.

*Fregata andrewsi* Mathews, Austral. Av. Record. ii. p. 112 (1914) (Christmas Island); *F. aquila*, Legge p. 1204; Oates & Blan. Vol. IV. p. 338.

*Description*.—Adult male: Black all over, except for a patch of white on the breast and the sides of the upper abdomen.

Female: Upper parts, head and neck black; lower parts from breast downwards white.

In immature birds the head and neck are white; back brownish; feathers of the lesser and median wing coverts brown with black shafts and pale borders. The change to mature plumage is gradual.

Bill bluish gray; iris dark brown; naked skin of throat red; legs and feet red.

Length up to about 40; wing about 24; tail up to 19; depth of fork up to 11.5; tarsus .8; bill from gape up to 5.5.

*Distribution*.—This species breeds on Christmas Island and is found over parts of the Indian Ocean. There is one skin from Ceylon in the British Museum and a slightly immature female in the Colombo Museum.

**322. FREGATA ARIEL IREDALEI****Iredale's Frigate-Bird**

Vernacular names not recorded.

*Fregata ariel iredalei* Mathews, Austral. Av. Record. ii. p. 121 (1914) (Mascarene Islands); *F. minor*, Legge p. 1203; *F. ariel*, Oates & Blan. Vol. IV. p. 338.

*Description*.—Adult male, black with a splashy bar of white on each flank.

Female: Black with a large white area on the abdomen and flanks, and a rufous collar round the hind neck.

Two immature birds in the Colombo Museum, which appear to belong to this species, are coloured as follows; Head and neck dirty white with faint, brown shaft-streaks; breast and back dark brown shading into black on the rump, tail-coverts and vent; wing quills and tail black; median and lesser coverts brown with whitish borders, forming a lighter bar down the wing; abdomen and a broad bar up the flanks white.

Bill grey; iris red, black in young birds; naked skin of throat red; feet black.

Length about 30; wing about 20; tail 13; depth of fork 6, to 7.5; tarsus .8; bill from gape 4.25.

*Distribution*.—An occasional straggler to our shores, generally observed on the West Coast; the species is found all round the warmer Australasian seas and the Indian Ocean; the present sub-species breeds on the Mascarene Islands.

### Family PHALACROCORACIDAE

#### *Cormorants and Darters*

The present Family are birds either of medium, or fairly large size and of rather heavy build; their plumage is wholly, or mainly black, especially on the upper parts. The neck is long; the bill long and slender; the tail feathers are stiff and harsh. The wings are of moderate length; the birds rise heavily, but have a powerful flight. They are all voracious fishers, diving and often swimming for some distance under water after their prey. After coming out of the water they have a curious habit of alighting on a low rock, or tree stump, and as it were hanging themselves out to dry with their wings half extended. The nest is a platform of twigs, more or less lined with grass, or water weed, and placed on low trees, or ledges of rock. The eggs are narrow ovals, with an inner texture of green and a rough, outer layer of chalky white.

The Family is divided into two Sub-families, distinguishable by the shape of the bill, as follows:—

A.—Bill hooked at the tip, edges of the mandibles smooth.

*Phalacrocoracinae* (Cormorants).

B.—Bill straight and pointed, edges of the mandibles serrated.

*Plotinae* (Darters).

### Sub-family PHALACROCORACINAE

#### *Cormorants*

A large genus, containing nearly forty species, occurring almost all over the world. Three species occur in Ceylon. As mentioned above, the bill is hooked at the tip. The nostrils are concealed by the skin at the base of the bill; the nasal grooves are long and narrow. There is a naked, gular pouch extending almost to the end of the lower mandible, the sides of which are joined together only at the tip.

*Key to Ceylon Phalacrocoracinae*

A.—Fourteen feathers in tail ; wing 12 inches, or over; plumage across the throat from eye to eye white.

*P. carbo sinensis* (Indian Large Cormorant).

B.—Twelve feathers in tail.

(a) Wing about 10.5.

*P. fuscicollis* (Indian Shag).\*

(b) Wing about 7.5.

*P. javanicus* (Little Cormorant).

**323. PHALACROCORAX CARBO SINENSIS****The Indian Large Cormorant**

*Diya-kāwā*, Sinhalese ; *nīr-kākā*, Tamil.

*Pelicanus sinensis* Shaw & Nord. Nat. Misc. xiii p. 529. (1801) (China) ; *Phalacrocorax carbo*, Legge p. 1182 ; Oates & Blan. Vol. IV. p. 340.

*Description*.—Adults: black glossed with green, or purple; a white band across the throat from eye to eye adjoining the naked skin of the face; a small, pointed crest on the head and nape; feathers of the upper back and wing coverts dark brown edged with black; wing quills bronzed black.

In the breeding season adults assume a patch of white low down on each flank; the head and neck are streaked with long narrow white plumes, which often almost hide the black plumage underneath.

Immature birds have the top of the head and neck finely streaked with rather lighter brown; the middle of the throat, the breast, and the middle of the abdomen are white, which becomes increasingly streaked with black until the dull adult plumage is attained.

Bill dark on the upper mandible and on the tip of the lower, remainder pale; iris green; naked skin round the eye dusky yellow, on the throat bright yellow spotted with black; legs and feet black.

Length 32; wing 12 inches, or more; tail 7; tarsus 2.3; bill from gape 3.75.

*Distribution*.—There appears to be some confusion in the records concerning the occurrence in Ceylon of this species and the next. Legge does not appear to have obtained specimens of either, and thought that some large Cormorants seen by him on Minneri tank were *P. carbo*, whereas they were probably *P. fuscicollis*. The present species certainly

\*Abnormal specimens sometimes occur with fourteen tail feathers, but they have no white facial band.

occurs during the north-east monsoon in the north of the Island, where it may be met with on lagoons near the coast. It has not yet been ascertained if it remains all the year round. The same sub-species is found on the coast, large rivers, and suitable sheets of water throughout India and Burma and as far east as Japan, and breeds in a good many localities. The species ranges over almost the whole of the Old World, also Australia and the east coast of North America.

*Habits*.—The birds often scatter during the day, but roost and breed in large companies. The nest is placed on trees growing in the water, or on rocks. The eggs may be four to seven in number, and measure about 2.50 by 1.60.

### 324. PHALACROCORAX FUSCICOLLIS

#### The Indian Shag

*Diya-kāwā*, Sinhalese, ; *nīr-kākā*, Tamil.

*Phalacrocorax fuscicollis* Stephen Shaw's. Gen. Zool. xiii. p. 91 (1825) (India); Legge p. 1182; Oates & Blan. Vol. IV. p. 341.

*Description*.—Adults: black glossed with green, or purple; the black of the face plumage extends right up to the naked facial skin, there being no white border; there is no crest; on the side of the head are a few minute, white specks; out of the breeding season the throat is more or less speckled with white; in breeding plumage the birds assume a minute tuft of two or three white feathers on each side of the neck behind the ear.

Young birds are brown above; the throat, breast, and abdomen are mostly white, becoming more and more streaked with brown as age increases.

Bill dark horny brown, often lighter underneath; iris greeny blue; naked skin round the eye black, on the throat yellow; legs and feet black.

Length 25; wing about 10.5; tail 6.5; tarsus 1.8; bill from gape 3.25.

*Distribution*.—Occurs on Minneri and other tanks in the north of the Island. Four specimens shot by me out of different flocks on Minneri tank all belonged to this species. It is also found in the Hambantota District and probably in the Eastern Province. I have shot the bird in August, so it would appear to be resident. Elsewhere it occurs in Sind, Central India, and the Carnatic, and more abundantly in Burma.

*Habits*.—This species occurs in fairly large flocks on some of the larger inland sheets of water and many be found in smaller parties on a good many of the village tanks in the North-Central Province. It is a wary bird, and seldom comes within range of the shore. As yet no



nesting place appears to have been discovered in Ceylon. In India the birds breed in colonies on low trees standing in the water. The eggs are rather smaller than those of *P. carbo*, and measure about 2·1 by 1·4.

### 325. PHALACROCORAX JAVANICUS

The Little Cormorant (Pl. XVIII. Fig. 1.)

*Diya-kāwā*, Sinhalese ; *nīr-kākā*, Tamil.

*Carbo javanicus* Horsf. Trans. Linn. Soc. xiii. p. 197 (1821) (Java); *Phalacrocorax pygmaeus*, Legge p. 1191; *P. javanicus*, Oates & Blan. Vol. IV. p. 342.

*Description*.—Black slightly glossed with green; wing coverts and scapulars dark silvery gray, each feather bordered with black. Out of the breeding season the throat adjoining the naked skin is white; in the breeding season some scattered white feathers appear on the crown and sides of the head, with a few white filaments on the sides of the neck.

Bill brown, livid purple in the breeding season; iris greenish brown to greenish white; the naked skin of face and throat, and the legs blackish out of the breeding season, livid at breeding time.

Length 20; wing 7·5; tail 5·50; tarsus 1·3; bill from gape 2·2.

*Distribution*.—Common all over the low-country wherever there are tanks, or marshes. Found throughout India and Burma, the range extending eastward through Malaya to the Dutch East Indies.

*Habits*.—The birds scatter during the day, but sometimes on large tanks unite in huge parties, which form across the water and drive the fish before them. They roost and breed in big colonies on low trees. They breed chiefly during the rains of the north-east monsoon, but in favourable localities several broods are reared. The eggs are three to five in number, and measure about 1·75 by 1·15.

### Sub-family PLOTINAE

#### *Darters*

The Darters are a tropical group, differing from the Cormorants in having a long, straight, pointed bill with no nasal grooves. The head and neck are very slender, the latter being long and with a bend in the vertebrae, like the neck of a Heron. There is no naked pouch under the chin. Only one species occurs in Ceylon.

## 326. ANHINGA MELANOGASTER

## The Indian Darter, or Snake-Bird

*Diya-kāwā, hānsiyā*, Sinhalese ; *pāmbu-kuruvi*, Tamil.

*Anhinga melanogaster* Pennant. Ind. Zool. p. 13 (1769) (India); *Plotus melanogaster*. Legge p. 1094 ; Oates & Blan. Vol. IV. p. 344.

*Description*.—General colour glossy black ; head and hindneck blackish brown with purer edges to the feathers ; a fine, white streak above the eye ; the feathers of the upper back with brown edges ; conspicuous, silvery white shaft-streaks on the scapulars, wing coverts, and tertiaries ; the innermost tertiary and the four central tail feathers have the outer web corrugated : face, throat, and upper part of the fore-neck white : a white stripe extending from the bill above the gape for some way down the side of the neck.

Immature birds are sooty brown on the under parts and lower back ; the white shaft-stripes on the upper plumage are tinged with yellow ; neck pale brown, whitish underneath.

Bill brownish on the upper, yellowish on the lower mandible ; iris yellow ; legs black.

Length 36 ; wing 13.5 ; tail 10 ; tarsus 1.5 ; bill from gape 3.8 ;

*Distribution*.—Common on tanks all through the drier parts of the low-country. Found throughout India, Burma, and the whole of the Oriental region.

*Habits*.—Like the Cormorants, this bird feeds entirely on fish. It swims with only the head and neck out of water, and can travel for a long way under the surface. It is very wary, and generally keeps well out of range. It breeds in colonies in the early part of the year. The nest and eggs resemble those of Cormorants. The eggs are three or four in number, and measure about 2.10 by 1.35.

## Family. SULIDAE

*Gannets and Boobies*

The Family contains under a dozen species, comprising the more active Gannets, which are found in the temperate zone, and the more sluggish Boobies which range round the tropics.

The bill is powerful and pointed, curving slightly at the end. The skin of the face and of the throat adjoining the bill is naked ; the nostrils are placed at the base of the bill, being minute even in young birds and completely closed in adult specimens. The wings are long and pointed,

the tail long and wedge-shaped. The Boobies feed mainly on flying fish and wander throughout the tropical seas, but are chiefly found about reefs and islands. They breed on isolated, rocky islands, laying one chalky-white egg with an inner texture of green. Two species have occurred in Ceylon as occasional stragglers.

*Key to Ceylon Sulidae*

A.—Fourteen tail feathers; wing about 15; feet pale yellow.

*Sula leucogaster plotus* (Booby).

B.—Sixteen tail feathers; wing about 16·5; feet slaty.

*Parasula dactylatra personata* (Australian Masked Booby).

**327. SULA LEUCOGASTER PLOTUS**

**The Booby, or Brown Gannet** (Pl. XVIII. Fig. 2.)

Vernacular names not recorded.

*Pelecanus plotus* Forster, Descrip. Anim. p. 278. (1844) (New Caledonia); *Sula leucogastra*, Legge p. 1177; *S. leucogaster*, Oates & Blan. Vol. IV. p. 346.

*Description*.—Head, neck, all upper parts, and upper breast chocolate brown, with a deeper bluish tinge on the wing quills and tail feathers; the lower breast and abdomen with the lower tail coverts white; wing-lining brown with some white.

Immature birds are rather lighter than adults on the upper plumage, and the lower parts are pale brown with whitish tips to the feathers.

Bill creamy white; iris white, or very pale; the pouch and naked skin of the face is pale, with a blue, green, or yellow tinge. Legs and feet pale yellow.

Length 28 to 32; wing 15; tail 8; tarsus 1·8; bill from gape 4·5.

*Distribution*.—A straggler to Ceylon during the north-east monsoon. It has been recorded on several occasions from Arippe, Colombo, Kalutara, and Galle. This sub-species is occasionally met with on the coasts of India and Burma, and ranges over the Indian Ocean to Australian seas.

**328. PARASULA DACTYLATRA PERSONATA**

**The Australian Masked Booby**

Vernacular names not recorded.

*Sula personata* Gould. P. Z. S. 1846. p. 21 (Raine Island); *Sula cyanops* Legge p. 1180; Oates & Blan. Vol. IV. p. 347.

*Description*.—Plumage white, except the wing quills, greater coverts, and tail feathers, which are blackish brown.

Immature birds are brown throughout, with a few paler feathers on the breast and abdomen; the wing-lining is mostly white with some brown.

Bill yellow, or greenish yellow; iris yellow, reddish, or greenish yellow; pouch and naked skin of face dark slate colour; legs and feet slate gray, the webs darker.

Length 32; wing 16.5; tail 7.25; tarsus 2.2; bill from gape 5.

*Distribution*.—There is one specimen in the Colombo Museum, which came from the coast of the North-Western Province. The bird has occasionally been obtained off the west coast of India, and, like the last species, ranges throughout the tropical seas round Australia and in the Indian Ocean.

## Family PHAETHONTIDAE

### *Tropic Birds*

The Tropic Birds are the most graceful members of the Order. In size and appearance they are not unlike the larger species of Terns. The plumage is satiny and mainly white; the young are barred on the back with black, and in one Indian species the barring persists in the adult plumage. The bill is stout, gently curved, and pointed; the nostrils are linear, and placed near the base of the bill. The wings are very long, and the first primary is the longest. The two middle tail feathers are produced into long, narrow streamers, greatly exceeding the other tail feathers, which are short. The birds spend a great part of their time far out at sea, and breed on oceanic islands, where they nest in holes in the rocks, laying a single egg of reddish white with brownish purple markings. Four or five species are known, ranging over the tropical ocean. Only one species has definitely been recorded from Ceylon.

## 329. PHAETHON LEPTURUS LEPTURUS

### The White Tropic-Bird

Vernacular names not recorded.

*Phaethon lepturus* Daudin. Buff. Hist. Nat. xiv. p. 319 (1802) (Mauritius)  
*Ph. flavirostris*, Legge p. 1172; Oates & Blan. Vol. IV. p. 350.

*Description*.—Plumage in adults satin white; a black, crescent-shaped patch in front of the eye and a black stripe behind the eye to the back of the head; two broad, black bands on the wings: the inner

one on the median coverts and tertiaries, the outer on the first five or six primaries; streamers are long and white, with black shafts which whiten towards the tip; a wash of grayish black on the flanks.

Immature birds are barred with black on the upper plumage.

Bill pale yellow; iris brown; legs and base of the toes dull yellow; rest of foot black.

Length, including streamers, up to 30; tail up to 18; wing 10.75; tarsus .9; bill 2.8.

*Distribution*.—Specimens have been obtained at Chilaw and Colombo, others have been seen off the west coast. Occasionally reported from the Indian Coast, and once a bird was caught 170 miles inland in Cachar, north-east India. The species ranges all round the tropical seas.

[*Note*.—Two other species of the family occur in Indian seas and may possibly turn up on the Coast of Ceylon. The first of these is **Phaethon indicus** Hume,—The Short-tailed Tropic-bird. It is slightly larger than the White Tropic-bird, with a wing of about 11.5 and a bill of 3.25. The streamers are much shorter, only about 12 inches, and the back even in adults is barred with black. The other species is **Phaethon rubricauda** Bodd—The Red-tailed Tropic-bird. The wing is about 13, and the bill 3.25. The outer web of the first primary is white, the streamers in adults run to 19 inches and are carmine red with black shafts. For the supposed occurrence of *P. indicus* in Ceylon seas see Legge p. 1173 footnote.]

## Order XVIII. TUBINARES

### Family PROCELLARIIDAE

#### *Petrels*

The Petrels are oceanic birds, which generally live far from land, resting on the water, and resorting to the shore merely for breeding purposes. In outward form they are not unlike Gulls, but differ from them in many characteristics of their structure. They may be distinguished from all other Orders by their nostrils, which terminate externally in tubes. These tubes may be united, or separate, the nostrils in some species having but a single orifice, in others a double orifice separated by a septum. The upper mandible of the bill is deeply grooved, and generally sharply hooked at the tip. The front toes are well webbed; the hind toe, or hallux is small, often represented by a mere claw, or sometimes absent. The wings are long in most forms, and the flight swift and powerful, the birds generally skimming near the surface of the waves. They feed on small, floating forms of marine life and on small fish. Many of them follow in the wake of ships and feed on the refuse thrown overboard.

The Order comprises a good many forms which vary in size from the Albatross to the tiny Stormy Petrels. Classification within the Order has been a matter of some controversy. Blanford, largely for the sake of convenience, seeing that the birds found in Indian Seas are limited to rare stragglers of a few species, has left all the Indian genera in one Family. The species found round Ceylon fall into three groups, each of which represents a Family, or Sub-family of Salvin's classification in the British Museum Catalogue.

1st. The Stormy Petrels:—*Procellariidae* of Salvin—Small birds rather dainty in form with slim legs and bills and a comparatively long tarsus. Their range is almost world-wide. In this group the nostril tube has only a single external orifice. One species occurs round Ceylon.

2nd. The Shearwaters—*Puffininae* of Salvin. Members of the group may be found on all the seas of the World. The tarsus is moderate. The bill is long, slender and flattish, both mandibles curve downwards at the tip, and the upper is sharply hooked. The nostrils terminate in two distinct orifices with a wide septum between them. The feet are fairly large, the front toes are fully webbed and there is a distinct

hind-claw. Hitherto only one species has been recorded from Ceylon, but recently Mr. G. M. Henry of the Museum and myself, on examining the skins in the Colombo Museum, came across single specimens of two other species.—*Puffinus leucomelas* and *Puffinus carneipes*—both new to Indian Seas. Mr. Stuart Baker kindly had the skins examined at the British Museum with the result that our identification was verified.

3rd. The Fulmar Group—*Fulmarinae* of Salvin.—One southern member of this group, the common Cape Pigeon of S. African Seas, strays occasionally north of the Equator and has been recorded from the Gulf of Mannar. It is about the same size as a Shearwater, but the nostrils terminate in a single orifice. The bill is comparatively short, flatter, and is even more sharply hooked.

#### Key to Ceylon Procellariidae

A.—Size small; wing under 7 inches; nostrils with a single external orifice.

*Oceanites oceanicus oceanicus* (Wilson's Stormy Petrel.)

B.—Nostril tubes with a double external orifice; upper surface mainly black, or dark brown:

(a.) Lower surface white; wing about 13.

*Puffinus leucomelas* (White-fronted Shearwater).

(b.) Lower surface dark.

1. Wing about 11; bill dusky greenish; feet fleshy white;

*Puffinus pacificus hamiltoni* (Wedge-tailed Shearwater).

2. Wing about 12.5; bill and legs flesh coloured.

*Puffinus carneipes carneipes* (Flesh-footed Shearwater).

C. Size medium; nostrils with a single external orifice.

(c.) Wing about 10.25; upper plumage mainly mixed black and white.

*Daption capensis* (Cape Pigeon).

### 330. OCEANITES OCEANICUS OCEANICUS

#### Wilson's Stormy Petrel

Vernacular names not recorded.

*Procellaria oceanica* Kuhl. Beitr. Anat. ii. p. 136. pl. x. (1820) (S. Atlantic); *Oceanites oceanicus*, Legge p. 1056; Oates & Blan. Vol. IV. p. 354.

*Description*.—Upper parts sooty black; the forehead and under parts slightly browner and paler; the greater wing coverts grayish brown; the upper tail coverts and hindmost part of the flanks white.

Bill black; iris almost black; legs and feet black, the centre of the webs between the toes pale yellow.

Length 7.5 ; wing 6.25 ; tail 3 ; tarsus 1.3 ; bill from gape .65.

*Distribution*.—This Petrel is found in the Indian and Atlantic Oceans. Various observers from Legge onwards have, on occasions, observed a small Petrel round our coasts, which answered to its description, but the identification was not satisfactorily established till Nov. 1908, when Capt. Bainbridge Fletcher R.N. of H.M.S. *Sealark* obtained a specimen, which flew on board the vessel, then engaged on survey duties, two or three miles off the coast of the Hambantota District.

*Habits*.—An oceanic bird which may occasionally be seen in small flocks flying low over the waves, near the land, especially in squally weather at the change of the monsoons.

### 331. PUFFINUS LEUCOMELAS

#### The White-fronted Shearwater

Vernacular names not recorded.

*Puffinus leucomelas* Temm. Pl. Col. 587. (1836) (Seas of Japan) ; neither in Legge, nor Oates & Blan.

*Description*.—Feathers of the forehead and lores white with black spots in the centre ; the crown mainly dusky brown ; hindneck more mixed with white ; the remainder of the upper surface and the wings dusky brown with rather paler edges to the feathers ; primary quills almost black ; tail dull brown, the outer feathers with some white on the inner webs near the base ; whole of lower parts white.

Bill dark horn colour ; legs pale flesh colour.

Length about 19 ; wing 13 ; tail 6 ; tarsus 2 ; bill from gape about 2.50.

*Distribution*.—A single specimen, taken at Mt. Lavinia in 1884, is in the Colombo Museum. It was identified at the British Museum. The usual range of this species is in the Japanese Seas, and Southwards to Borneo. It has once been taken on the N.E. Coast of Australia.

### 332. PUFFINUS PACIFICUS HAMILTONI

#### The Wedge-tailed, or Green-billed Shearwater (Pl. XVIII. Fig. 3.)

Vernacular names not recorded.

*Puffinus pacificus hamiltoni* Mathews, Birds of Aust. p. 82. (1912) (Seychelles.) ; *P. chlororhyncus*, Legge p. 1054 ; Oates & Blan. Vol. IV. p. 356.

*Description*.—Dark smoky brown above, paler beneath, with a grayish tinge, which is most pronounced on the chin and throat.

Bill dusky greenish ; iris almost black ; legs and feet fleshy white.

Length 16 ; wing 10.75 ; tail 5 ; tarsus 1.8 ; bill from gape 1.8.



*Distribution*.—Has been obtained on several occasions between Panadure and Colombo, and has been seen by Capt. Legge at Trincomalie. The species ranges over the Indian Ocean, the South Pacific, and the seas round Australia and New Zealand. The present sub-species occurs in the Western Indian Ocean.

### 333. PUFFINUS CARNEIPES CARNEIPES

#### The Flesh-footed Shearwater

Vernacular names not recorded.

*Puffinus carneipes* Gould, P. Z. S. 1844 p. 57. (Cape Leeuwin. W. Australia); neither in Legge, nor Oates & Blan.

*Description*.—Plumage dark sooty brown, slightly paler underneath and tinged with gray on the throat.

Bill flesh colour, darker at the tip; iris dark brown; legs and feet flesh colour.

Length about 19·5; wing 12·5; tail 4·5; tarsus 2; bill from gape 2.

*Distribution*.—The present sub-species is found in the seas on the Western side of Australia. There is a single specimen in the Colombo Museum, from Panadure 17 miles S. of Colombo in 1879. It was identified at the British Museum.

### 334. DAPTION CAPENSIS

#### The Cape Pigeon, or Cape Petrel

Vernacular names not recorded.

*Procellaria capensis* Linn. S. N. i. p. 213. (1766) (Cape of Good Hope); *Daption capensis*, Legge p. 1056; Oates & Blan. Vol. IV. p. 357.

*Description*.—The whole head with the back and sides of the neck brownish black; the remainder of the upper parts white with a broad, black tip to each feather, except on the primary coverts and lesser wing coverts, which are wholly black; most of the outer web of the primary quills and the tip of the inner web black, the rest white; tail white with a broad, black tip; under plumage white, mottled on the throat and lower tail coverts with dusky brown.

Bill black; iris brown; legs and feet blackish brown, with light patches on the side of the toes.

Length 16; wing 10·25; tail 4; tarsus 1·7; bill from gape 1·6.

*Distribution*.—A single specimen was obtained many years ago in the Gulf of Mannar. The species is abundant in the southern hemisphere, but rare north of the equator.

## Order XIX. HERODIONES

### *Ibises, Spoonbills, Storks and Herons*

These are all wading birds found about marshes and swamps. They resemble the *Limicolæ*, or non-perching Waders, in having the neck, bill, and legs long, and the tibia usually bare for some distance above the joint with the tarsus. They differ from them widely, however, in many points of their structure, the most noticeable outward point of distinction being the hind toe, which in the present Order is well developed and set on the foot in the same plane as the other toes, thus enabling the birds to perch firmly and to roost in trees. Again, in the manner of nidification and in the character of the nestlings they show more relationship with the Birds of Prey and the *Steganopodes*. The nest is usually a platform of twigs placed in a tree, the eggs are, with few exceptions, unspotted, while the young are helpless when hatched, and require to be fed for some time by the parents.

The Indian members of the Order fall into three Sub-orders, characterized outwardly as follows:—

I.—Bill long, either curved downwards, or spoon-shaped.

*Plataleæ* (Ibises and Spoonbills).

II.—Bill long, stout, with no distinct nasal groove, and generally straight.

*Ciconiæ* (Storks).

III.—Bill generally straight, slender, and pointed; a distinct groove running from the nostrils down each side of the upper mandible; claw of middle toe furnished with a comb.

*Ardeæ* (Herons).

### Sub-order PLATALEÆ

#### *Ibises and Spoonbills*

The Ibises and Spoonbills are closely related, but have been placed in separate Families owing to the great difference in the beak; the bill curving downwards in the *Ibididæ*—Ibises, and being straight and

## Family IBIDIDAE

*Ibises*

Ibises are medium-sized birds, with long curving bills and legs of comparatively moderate length, the bill being considerably longer than the tarsus. The nostrils are placed near the base of the bill in a groove which extends down the side of the upper mandible. Their flight is characteristic: the neck is outstretched, as with the Stork, but the wing beats are quicker, and there are frequent intervals of gliding with the wings held steady. They are frequently confused with the Curlews, but may be distinguished at once by their long hind toes.

Two species, placed in separate genera, are found in Ceylon.

*Key to Ceylon Ibididae*

A.—Plumage white; head and neck naked in adults.

*Threskiornis melanocephalus melanocephalus* (White Ibis).

B.—Plumage coloured; head and neck feathered, except in front of the eye.

*Plegadis falcinellus falcinellus* (Glossy Ibis).

## 335. THRESKIORNIS MELANOCEPHALUS MELANOCEPHALUS

## The White Ibis

*Tattu-kokkā, dāhākatti-kokkā*, Sinhalese.

*Tantalus melanocephalus* Lath. Ind. Orn. ii. p. 709. (1790) (India); *Ibis melanocephala*, Legge p. 1106; Oates & Blan. Vol. IV. p. 361.

*Description*.—Plumage white; the tertiaries slate gray at the ends; the primaries generally mottled with brown at the tips; the skin of the head and neck black and naked in adults. In breeding plumage the tertiaries grow long and soft, and there are a few plumes on the upper breast.

Young birds have blackish gray feathers on the head and neck as far forward as the eyes.

Bill black; iris red brown; legs and feet black; wing skin scarlet.

Length 30; wing 14; tail 5; tarsus 4; bill from gape 6.5.

*Distribution*.—Scattered throughout the northern half of the Island and down the east side as far south as Tangalla. This sub-species occurs throughout India and Burma, and ranges eastwards to China and South Japan.

*Habits*.—This Ibis may be found in flocks here and there round the large tanks, or in marshes, feeding on molluscs, worms, &c. The birds breed in colonies, mainly during the north-east monsoon rains, but

occasionally later, as I have found young unable to fly in July. The nests are fairly large platforms of twigs, placed on trees growing in the water. Three eggs are generally laid; they are white, elongated ovals, sometimes delicately spotted with brown, and measuring on an average 2.57 by 1.65.

### 336. PLEGADIS FALCINELLUS FALCINELLUS

#### The Glossy Ibis (Pl. XIX. Fig. 1.)

*Ratu-datuduwā*, Sinhalese; *karuppu-kōtān*, Tamil.

*Tantalus falcinellus* Linn. S. N. x. p. 241. (1766). (Australia); *Plegadis falcinellus*, Legge p. 1109; Oates & Blan. Vol. IV. p. 364.

*Description*.—Head, wings, and tail deep brown glossed with bronze green and purple; remainder of upper plumage dark chestnut; a patch of bright maroon red on the scapulars and smaller wing coverts; the breast and abdomen lighter chestnut. Out of the breeding season the red patch disappears from the wing coverts and scapulars, and the head and neck become blackish brown streaked with white.

Young birds have sooty black heads and necks, and brownish black under parts.

Bill dark livid brown; naked skin round eye livid; iris brown, occasionally mottled with gray; legs bronze brown, bluish above the tarsus.

Length 25; wing 11.5; tail about 4; tarsus 4; bill from gape 5.25.

*Distribution*.—Found about tanks in the low-country, and by the lagoons of the north and east coasts. Mainly resident and commonest in the north, where the numbers are probably augmented during the north-east monsoon by migrants. It occurs throughout the better-watered plains of India and Burma, mostly as a winter visitor. This subspecies ranges from S. Europe to India.

*Habits*.—Generally met with in flocks, but not very common, and usually very shy. The birds breed in small colonies in trees near water, making smallish, stick nests. The eggs are oval, pointed at each end; the colour is a beautiful bluish green, and the surface is slightly pitted. Three are usually laid; average size 2 by 1.40.

## Family PLATALEIDAE

### Spoonbills

Only one species occurs within our limits; in form it resembles the Ibises, but is larger, more slender, and with longer legs. The bill is long and very flat, broadening and curving downwards at the extreme

tip, like the wide handle of a huge spoon. The nostrils are placed near the base of the bill, and the nasal grooves run close to the edge of the mandible right up to the tip; half of the tibia is naked; the toes are long, bordered by membrane, and slightly webbed at the base.

### 337. PLATALEA LEUCORODIA MAJOR

#### The Indian Spoonbill

*Hāndi-aluwā*, Sinhalese; *chappai-chondan*, Tamil.

*Platalea major* Temm. and Schleg, Faun. Jap. p. 119. (1849) (Japan); *P. leucorodia*, Legge p. 1096; Oates & Blan. Vol. IV. p. 366.

*Description*.—Plumage white; adults have a patch of cinnamon on the lower neck. In the breeding season a crest of pointed plumes is assumed. The skin of the face in front of the eyes is naked and yellow; the skin of the throat is also naked and yellowish red.

In young birds the primary quills have black shafts, and the outermost quills are tipped with black.

Bill in adults black, yellow at the tip; in young birds mainly yellow; iris red; legs and feet black.

Length 33; wing 15; tail 5; tarsus 6; bill from gape 8.

*Distribution*.—Met with in small flocks on large tanks and marshes in the wilder parts of the dry zone. Occurs here and there on the well-watered plains of the Indian peninsula and Burma; this sub-species ranges from Egypt to Japan.

*Habits*.—An extremely shy bird. This species is resident, and breeds from December to March in small colonies by the water-side. The nest is a large, massive structure of sticks placed in a tree. The eggs are two to five in number, chalky white ovals with a few brown blotches; average size about 2.5 by 1.8.

## Sub-order CICONIAE

### Family CICONIIDAE

#### *Storks*

The Storks are a familiar and widely-distributed Family of large birds. Many of them are migratory, breeding in temperate regions and wintering southwards; others are resident in the warmer regions of the world. The neck is long; the bill long, stout, pointed, and generally straight. The nostrils are placed at the base of the bill, but there is no distinct nasal groove. The structure of the windpipe is peculiar,

the voice muscles being absent, so that the birds are dumb. The legs are long, the measurements of the tarsus and of the bill from gape to tip being equal, or almost equal; the lower half of the tibia is naked. The toes are fairly short, but broad, and furnished with broad, short claws. The tail is short; the wings are long and broad; the flight is ponderous, but powerful, with slow, steady wing beats, the neck and legs being held outstretched. Storks frequently soar high in the air, wheeling in slow circles with expanded wings. Their food consists of small fish, frogs, reptiles, molluscs, large insects, or even mice and such small animals. Six species, distributed among as many genera, are found in Ceylon. Three of them are decidedly rare.

*Key to Ceylon Ciconiidae*

- A.—Length about 46 inches; bill straight; naked skin on face confined to a ring round the eye.  
*Ciconia ciconia asiatica* (Turkestan White Stork.)
- B.—Length about 32 inches; bill straight; forehead and cheeks naked.  
*Dissoura episcopa episcopa* (Indian White-necked Stork).
- C.—Length about 52 inches; bill slightly curved up at the end; head and neck completely feathered.  
*Xenorhynchus asiaticus asiaticus* (Black-necked Stork).
- D.—Length about 54 inches; bill straight; head and neck almost naked.  
*Leptoptilus javanicus* (Hair-crested Stork).
- E.—Length about 40 inches; bill curved downwards at the tip; head and throat naked.  
*Pseudotantalus leucocephalus leucocephalus* (Painted Stork).
- F.—Length about 32 inches; forehead feathered; face and throat naked; bill in adults with a gap between the mandibles.  
*Anastomus oscitans* (Openbill).

### 338. CICONIA CICONIA ASIATICA

#### The Turkestan White Stork

Nārai, Tamil.

*Ciconia alba asiatica* Svartz. Turk. Jevot. p. 145 (1873) (Turkestan);  
*C. alba*, Legge p. 1119; Oates & Blan. Vol. IV. p. 369.

*Description*.—Plumage white; the wing quills with the primary and larger secondary coverts black with a slight green, or purple gloss; the secondary quills more or less frosted with white.

Bill blood red; iris brown; ~~naked~~ skin round the eye black; legs red.

Length about 46 ; wing 24 ; tail 9.5 ; tarsus about 8 ; bill from gape 8.

*Distribution*.—An extremely rare migrant ; has been seen in the south-east of the Island and, contrary to its usual habits, once found breeding in 1880 in the North-Western Province. The present subspecies, which is the Central Asian race of the European Stork, breeds in Turkestan and Bokhara and winters for the most part in N. India ; it is rarer in S. India.

*Habits*.—In its winter quarters this species is generally met with in flocks in open fields, usually away from water. It feeds on locusts, reptiles, and small animals. The nest is a large structure of sticks placed in a tree, or on a building. The eggs are three to five in number, pure white, and measuring about 3 by 2.15.

### 339. DISSOURA EPISCOPA EPISCOPA

The Indian White-necked Stork (Pl. XIX. Fig. 2.)

*Pādili-kokkā*, Sinhalese ; *vannātai-nārai*, Tamil.

*Ardea episcopus* Bodd. Pl. Enl. p. 54 (1783) (India) ; *Dissura episcopus*, Legge p. 1119 ; Oates & Blan. Vol. IV. p. 370.

*Description*.—The crown black ; neck, lower abdomen, and tail white ; remainder of plumage black, glossed with purple on the upper back and breast, and with bronze green on the lower back and upper abdomen.

Bill black, tinged with red on the ridge and along the edges ; iris crimson ; bare skin of the face lead coloured ; legs and feet red.

Length 32 ; wing 18.5 ; tail 7.5 ; tarsus 6.5 ; bill from gape 6. Ceylon birds appear to be rather smaller than Indian.

*Distribution*.—Fairly common in the dry zone of the low-country. The same form is found throughout India and Burma in the plains, and extends eastwards to Cochin-China and the Dutch East Indies.

*Habits*.—In Ceylon this Stork appears to prefer the neighbourhood of abandoned, or secluded tanks in the heart of the jungle. The birds generally nest apart, not in colonies, making a large structure of twigs in a tall tree. The nest is lined with down, or with straw, leaves, and feathers. There are generally four bluish white eggs, averaging about 2.5 by 1.83.

### 340. XENORHYNCUS ASIATICUS ASIATICUS

The Black-necked Stork

*Alī-kokkā*, Sinhalese ; *periya-nārai*, Tamil.

*Mycteria asiatica* Lath. Ind. Orn. ii. p. 670 (1790) (India) ; *Xenorhynchus asiaticus*, Legge p. 1116 ; Oates & Blan. Vol. IV. p. 372.

*Description*.—Head and neck black, the crown glossed with copper and purple, the remainder with bluish green; scapulars, tertiaries, some of the wing coverts, and tail dark glossy green; rest of plumage white.

In young birds the upper plumage is brown with a green gloss on the scapulars and wing quills; the lower back and rump are whitish.

Bill black; naked patch under the bill dusky purple; iris dark brown in males and young birds, bright yellow in females; legs coral red.

Length about 52; wing 24; tail 9; tarsus about 12.75; bill from gape about 12.

*Distribution*.—Occurs in the wildest parts of the low-country, but very rare, though probably resident. This sub-species is found in suitable localities throughout India and Burma, and extends south-eastwards to the Malay Peninsula.

*Habits*.—Found round wild, forest tanks, or secluded lagoons. Probably breeds about Christmas time. The nest is a big platform of sticks lined with rushes, grass, or water weed, and placed in a large tree. The four white eggs measure about 2.91 by 2.12.

### 341. LEPTOPTILUS JAVANICUS

#### The Smaller Adjutant

*Mānā*, Sinhalese; *mānā*, *mēva-kokku*, Tamil.

*Ciconia javanica* Horsf. Trans. L. S. xiii. p. 188 (1821) (Java); *Leptoptilus javanicus*, Legge p. 1113; Oates & Blan. Vol. IV. p. 374.

*Description*.—Skin of head and neck sallow and almost naked, being sprinkled with grayish down and long hairs of dark brown; upper plumage, wings, and tail glossy greenish black; the long scapulars and tertiaries edged with white; lower parts white; wing-lining black.

Young birds have more feathers about the head, and the tertiaries have no white edging.

Bill dirty yellow; iris whitish; legs dirty ashy brown.

Length 54; wing 26; tail 11; tarsus 10.5; bill from gape 12.

Females are a good deal smaller.

*Distribution*.—Sparsely scattered through the wilder parts of the dry zone. May be met with here and there over most of India; commoner in Burma, and ranges S. Eastwards to the Malay Archipelago.

*Habits*.—Frequents remote tanks and water-holes in the heart of the forest. The species probably breeds in the island, but no eggs appear to have been taken as yet. The nest is the usual huge pile of sticks in a tree; the three white eggs measure about 2.84 by 2.09.



## 342. PSEUDOTANTALUS LEUCOCEPHALUS LEUCOCEPHALUS

## The Painted Stork

*Datu-duwā*, Sinhalese; *changu-vellai-nārai*, Tamil.

*Tantalus leucocephalus* Penn. Ind. Zool. p. ii. pl. x. (1769). (Ceylon); Legge p. 1100; *Pseudotantalus leucocephalus*, Oates & Blan. Vol. IV. p. 376.

*Description*.—Plumage mainly white; primaries, secondaries, and tail black with a green gloss; tertiaries rose pink edged with white; lesser wing coverts glossy greenish black with white edges; scapulars and greater wing coverts tinged with rose; wing-lining and a broad band across the breast black with a green gloss, each feather being edged with white; under tail coverts with a faint rosy tinge.

Young birds have the wing quills and tail coloured as in adults, but the rest of the upper parts are brown, with the exception of the rump, which, with the breast and abdomen, is dirty white.

Bill and naked skin of head, face, and throat orange yellow; iris pale yellow; legs brown.

Length 40; wing 20; tail 6.5; tarsus about 8.5; bill from gape 10.

*Distribution*.—Fairly common round tanks and lagoons in the dry zone. This sub-species occurs in suitable localities all over India (except in the Punjab) and Burma, ranging eastwards to Southern China.

*Habits*.—This bird, commonly, but erroneously called the Pelican Ibis, is a Stork, with the usual habits of the rest of the family. It is sometimes met with in large flocks, but is usually found alone, or in small parties about secluded tanks and brackish lagoons. The birds breed in small colonies during the early months of the year. The nest is the usual platform of sticks placed in a tree. The eggs are generally three or four in number, but sometimes more, dull white in colour, and measuring about 2.77 by 1.88.

## 343. ANASTOMUS OSCITANS

## The Open-bill, or Shell-Ibis

*Bellan-kokkā*, Sinhalese; *karu-nārai*, Tamil.

*Ardea oscitans* Bodd. Tabl. Pl. Enl. p. 55. (1783). (Pondicherry); *Anastomus oscitans*, Legge p. 1103; Oates & Blan. Vol. IV. p. 377.

*Description*.—In breeding plumage mainly white; the longer scapulars, the greater wing coverts, the wing quills, and tail being glossy greenish black. After the breeding season the white is replaced by smoky gray, which changes without a moult into white again as the breeding season approaches.

Young birds resemble adults in the off season, but are browner on the back, the face and throat are more completely feathered, while the edges of the mandibles meet throughout, instead of gaping in the middle.

Bill greenish, or grayish, tinged underneath with red; naked skin of face and throat almost black; iris gray, or light brown; legs flesh coloured.

Length 32; wing 16.5; tail 7; tarsus about 6; bill from gape 6.

*Distribution*.—Occurs in flocks round tanks and lagoons in the dry low-country. It is found all over the plains of India by large rivers and marshes, but in Burma its range is very restricted. Further eastwards it appears in Siam, Cochin-China, and S. China.

*Habits*.—This is our smallest and commonest Stork, though, like the last species, it is popularly misnamed an Ibis. It lives chiefly on freshwater molluscs, crushing the shells with its powerful beak. The constant attrition of the shells is said to cause the gap between the mandibles. It breeds in colonies during the rains of the north-east monsoon. The nest is of the usual type. The eggs vary from two to five, are white in colour, and measure about 2.25 by 1.6.

## Sub-order ARDEAE

### Family ARDEIDAE

#### *Hérons*

The Herons, which are well represented in Ceylon, form the largest Family of the Order. The bill is straight, pointed, and usually slender; the nostrils are placed in a distinct groove, which runs nearly to the tip of the bill. The lores are naked. The neck is long, with a bend in the vertebrae, and is generally held in an S curve, whether the bird is flying, or standing. This bend of the neck will almost always serve to distinguish a Heron, when on the wing, from a Stork. The wings are broad and rounded; the tail short. The body is slender, and small for the size of the bird. The legs are long, the toes long and slender; the hind toe is well-developed, and there is a slight web between the middle and outer toes. The nest is made of sticks, or reeds; the eggs in most cases are a pale shade of blue, or green, but in some species are white or almost so. Herons live largely on fish, and while fishing stand motionless, or stalk slowly in shallow water until a fish swims by, when it is secured by a quick dart of the head. They will also eat frogs, small crabs, and insects.

Fifteen species, representing ten genera, are found in the Island; from their size, coloration, and habits they may be divided into three main groups.

Firstly, three typical Herons, large birds over 36 inches in length, all belonging to the genus *Ardea*. The upper plumage is gray, the head is crested, the scapulars and the feathers at the base of the neck are lengthened into ornamental plumes, but there is no dorsal train, nor change of plumage during the breeding season.

Next come the Egrets, which are in general more slenderly built and smaller, ranging from 18 inches to 3 feet in length. In the breeding season these all develop a more or less lengthy dorsal train (the egret, or "osprey" plumes of commerce), except one curious species, the Reef-Heron which carries its dorsal train of elongated, but not "decomposed" feathers all the year round. The Reef-Heron is also peculiar, in that some specimens are wholly white, while others are almost entirely slate gray. The remaining members of this group are either entirely white, or white on the wings, tail, and greater part of the body.

Lastly, we have the Bitterns and Night Herons, six species, which are mainly nocturnal in their habits. These are stouter in build and not so long in the legs as other Herons, the measurement of the tarsus being less than that of the bill from gape to tip, except in one conspicuously short-billed species. All the Ceylon species are under 2 feet in length, in no case are the wings, back, and tail white, nor is there a change of plumage in the breeding season.

#### Key to Ceylon Ardeidae

I.—Size large; length 36 inches, or over; upper plumage gray. Genus *Ardea*.

- (a) Length about 38; middle of breast and abdomen black in adults, buff and gray in young.

*Ardea purpurea manillensis* (Eastern Purple Heron).

- (b) Length about 39; middle of breast and abdomen white.

*A. cinerea cinerea* (Common Gray Heron).

- (c) Length about 56; under surface of body chestnut in adults, streaked white and brown in young.

*A. goliath* (Giant Heron).

II.—Size medium; 18 to 36 inches in length; plumage all white, all gray, or with wings, tail, and greater part of body white.

A.—Plumage wholly white; naked portion of tibia much longer than inner toe and claw; tarsus longer than bill. Genus *Egretta*.

- (a) Length about 36; dorsal plumes in breeding season, but no crest, or breast plumes; tarsus about 6, but variable.

*Egretta alba modesta* (Eastern Large Egret).

- (b) Length about 26; dorsal and breast plumes in breeding season, but no crest; tarsus about 4.5.

*E. intermedia intermedia* (Indian Smaller Egret).

- (c) Length about 25; dorsal and breast plumes and crest in breeding season; tarsus about 4; bill 4.

*E. garzetta garzetta* (Little Egret).

- B.—Plumage white; head and neck buff in breeding season; naked part of tibia shorter than inner toe and claw; bill 3 inches.

*Bubulcus ibis coromandus* (Cattle Egret).

- C.—Plumage white, or slate-coloured; naked part of tibia about same length as inner toe and claw; tarsus shorter than bill; length about 25.

*Demigretta sacra asha* (Indian Reef Heron).

- D.—Wings, tail, and greater part of body white; back ashy brown, maroon in breeding season; length about 18.

*Ardeola grayii* (Indian Pond Heron).

- III.—Size small, or medium, 14 to 24 inches; wings and tail not white.

- A.—Plumage dark throughout; 12 tail feathers; bill slender, longer than tarsus; length 18.

*Butorides striatus javanicus* (Indian Little Green Bittern).

- B.—Bill stout, longer than tarsus; length 23; eyes red.

*Nycticorax nycticorax nycticorax* (Night Heron).

- C.—Bill stout, 2.5 inches long, shorter than tarsus; length 20.

*Gorsachius melanolophus* (Malay Bittern).

- D.—Size small, about 15 inches; bill slender, longer than tarsus; plumage mainly yellow, or chestnut. Genus *Ixobrychus*.

- (a) Wing quills black.

*Ixobrychus sinensis* (Chinese Bittern).

- (b) Wing quills chestnut.

*I. cinnamomea* (Chestnut Bittern).

- E.—Size medium, about 23; plumage dark; chin and throat richly variegated; bill slender, much longer than tarsus; 10 tail feathers.

*Dupetor flavicollis flavicollis* (Black Bittern).

**344. ARDEA PURPUREA MANILLENSIS****The Eastern Purple Heron (Pl. XIX. Fig. 3.)***Karawalā-kokkā*, *barendi-kokkā*, Sinhalese; *chen-nārai*, Tamil.*Ardea purpurea* var. *manillensis* Meyan. Acta. Acad. Leop. Carol. Suppl. p. 102. (1831) (Philippines); *A. purpurea*, Legge p. 1132; *A. manillensis*, Oates & Blan. Vol. IV. p. 381.

*Description*.—Forehead, crown, and crest black; chin and throat white; remainder of head and neck rufous cinnamon with long, black streaks down the back and sides; upper parts from lower hind-neck, including wings and tail, slaty gray, darker on the back, and almost black on the wing quills and tail feathers; scapulars long, pointed, and rufous at the ends; long feathers of the lower neck pale buff, streaked with chestnut and black; sides of the breast reddish chestnut; the centre of the breast, the abdomen, and under tail coverts slaty black; the thighs cinnamon; wing-lining pale ferruginous.

Young birds are drab and fawn, with sometimes an almost golden tinge, and lack the crest and elongated feathers on the back and breast.

Bill yellowish brown above, yellowish underneath; iris clear yellow; naked skin on face yellowish green; legs and feet reddish brown and yellow.

Length about 38; wing 14.5; tail 5.25; tarsus 5.5; bill from gape 6.

*Distribution*.—Common throughout the low-country. Occurs throughout India, Burma, and the whole Oriental region.

*Habits*.—May be seen about most tanks, brackish lagoons, and marshes, often skulking in long grass and reeds. The main breeding season is during the rains of the north-east monsoon, but where there is a favourable water supply the birds breed again in June. The nest may be placed in trees, on the flat tops of screw pines, or in thick clumps of bulrushes. In the former case it is a large platform of twigs; in the two last dried reeds and flags may enter into its composition. The eggs, three or four in number, are pale bluish green, almost regular oval in shape, and measure about 2.19 by 1.58.

**345. ARDEA CINEREA CINEREA****The Common Gray Heron***Kalapuwā-kokkā*, Sinhalese; *narayan*, Tamil.*Ardea cinerea* Linn. S. N. i. p. 143. (1758) (Sweden); Legge p. 1127. Oates & Blan. Vol. IV. p. 382.

*Description*.—The crown, the crest, and a band from the eye to the crown black; rest of head white; the neck white with a few black streaks on the lower fore-neck; upper parts from the neck to the tail

ashy gray; primary coverts and wing quills black; under parts white with a broad, black band running from the sides of the breast under the thigh to the vent; the sides of the body and wing-lining ashy gray.

Females have a shorter crest and less prominent black feathers on the side of the breast.

Young birds are of a darker and dirtier gray, with gray heads, and no black on the sides of the breast.

Bill dusky yellow, brownish along the ridge; iris golden yellow; naked skin on face greenish; legs and feet greenish brown and yellow.

Length 39; wing 17.5; tail 7; tarsus 6; bill from gape 6.

*Distribution*.—Not so common as the last species, but may be met with in the north, east, and south-east of the Island. Abundant in most parts of India; rarer in Burma. Occurs nearly all over the Old World, except E. Asia.

*Habits*.—Frequents the more secluded tanks and brackish lagoons. It breeds during the rains of the north-east monsoon, generally in the company of Egrets, Night Herons, &c. Such Heronries are usually on clumps of trees growing in the water. The nest is a large platform of twigs. The three eggs are fairly deep sea green, and usually slightly pointed at each end. Average measurement 2.28 by 1.70.

### 346. ARDEA GOLIATH

#### The Giant Heron

Vernacular names not recorded.

*Ardea goliath* Cretzschm. Rupp. Atl. p. 39. pl. 36. (1826). (Africa); Legge p. 1124; Oates & Blan. Vol. IV. p. 384.

*Description*.—African adults: crown and crest deep vinous chestnut; the hind neck and sides of the neck rather paler; upper parts with wings and tail slate gray; chin, cheeks, and throat white; lower fore-neck purple black streaked with white; breast plumes streaked with slate black and white; remainder of lower parts, including wing-lining and lower tail coverts, dark chestnut.

Immature birds are duller; the head and neck are paler; the feathers of the upper parts are edged with rufous; the under parts are brown streaked with white.

Bill dark slate colour; iris yellow with reddish margins; naked skin on face pale slate; legs and feet dark, slaty black.

Length 56; wing 24; tail 8.5; tarsus 9; bill from gape 9.5;

*Distribution*.—The usual habitat of this species is in Africa. Two or three immature specimens have been obtained in Ceylon, and a few more have been shot, or seen in various parts of India. All the known Indian and Ceylonese specimens are immature birds.

*Habits*.—This enormous Heron may be looked for near lagoons or by the mouths and lower reaches of the larger rivers in the very wildest parts of the Island.

### 347. EGRETTA ALBA MODESTA

#### The Eastern Large Egret

*Lōku-sudda-kokkā*, *badadel-kokkā*, Sinhalese ; *periya-vellai-kokku*, Tamil. *Ardea modesta* Gray, Zool. Misc. p. 19. (1831) (India); *Herodias alba*, Legge p. 1138 ; Oates & Blan. Vol. IV. p. 385.

*Description*.—Plumage entirely white. In the breeding season the bird assumes a train of long plumes, with very open, drooping barbs. These feathers spring from the back and reach several inches beyond the tail.

Bill in breeding season black ; naked skin of face bright green ; iris yellow ; legs and feet black. At other seasons the bill is yellow, the facial skin greenish yellow, and the legs and feet dull greenish.

The dimensions are very variable. Length about 36 ; wing 13 to 15.5 ; tail 5.5 ; tarsus 6 to 7.5 ; bill from gape 5 to 6.

*Distribution*.—Common throughout the low-country, wherever there are tanks and large stretches of paddy field ; also found about brackish lagoons. This sub-species occurs all over tropical India and Burma, ranging eastwards to China and Japan.

*Habits*.—These birds are usually met with singly, or in very small groups. They feed in shallow water well out in the open, and are very wary. They are fond of perching on tall trees. They breed in colonies, often in the company of other allied species, making a large, stick nest on trees growing in the water. The eggs generally number three or four, are nearly oval in shape, bluish green in colour, and measure about 2.18 by 1.57.

### 348. EGRETTA INTERMEDIA INTERMEDIA

#### The Indian Smaller Egret

*Sudda-kokkā*, Sinhalese ; *vellai-kokku*, Tamil.

*Ardea intermedia* Wagler, Isis, 1829. p. 659 (Java); *Herodias intermedia*, Legge. p. 141. Oates & Blan. Vol. IV. p. 386.

*Description*.—Plumage white. In the breeding season, in addition to the long dorsal train, egret plumes are also developed on the breast ; all the plumes are dropped when the breeding season is passed.

Bill in breeding season black ; naked skin of face green ; iris yellow ; legs and feet black. At other times the bill is yellow with a dusky tip, and the facial skin greenish yellow.

Length about 26 ; wing 12 ; tail 5 ; tarsus 4.5 ; bill from gape 3.75.

*Distribution*.—Common all through the low-country, but in the north not so numerous as the next species. Occurs throughout India and North Burma, the range extending to Java, the Philippines, and China.

*Habits*.—Similar to those of the last species, but usually the birds are met with in larger troops. They breed in Heronries from November to March, making the usual stick nest. The eggs are pale bluish green, three or four in number, and measure about 1.86 by 1.37.

### 349. EGRETTA GARZETTA GARZETTA

#### The Little Egret

*Sudda-kokkā*, Sinhalese ; *vellai-kokku*, Tamil.

*Ardea garzetta* Linn. S. N. i. p. 237. (1766) (in Oriente) ; *Herodias garzetta*, Legge p. 1144 ; Oates & Blan. Vol. IV. p. 387.

*Description*.—Plumage white. In the breeding season, like the other members of the genus, it carries a dorsal train of "decomposed" plumes: it also assumes breast plumes of long, but not filamentous feathers; and a head crest of two feathers about 5 inches long.

Bill always black ; naked skin on face greenish yellow ; iris yellow ; legs and feet black with some yellow on the toes.

Length about 25 ; wing 11 ; tail 4 ; tarsus 4 ; bill from gape 4.

*Distribution*.—Not so widely spread in Ceylon as the other Egrets, but fairly common in the north and in the Hambantota District, and occasionally found up-country. This sub-species is common all over India and Burma, and ranges throughout N. Africa, Southern Europe, and Southern Asia.

*Habits*.—Generally met with singly, or in pairs, but roosts and breeds in colonies in the same manner and at the same time as other members of the genus. In Ceylon it generally lays three or four eggs, pale bluish green in colour, and measuring about 1.66 by 1.30.

### 350. BUBULCUS IBIS COROMANDUS

#### The Cattle Egret

*Harak-kokkā*, Sinhalese ; *hunni-kokku*, Tamil.

*Cancroma coromanda* Bodd. Tabl. Pl. Enl. p. 54 (1783) (Coromandel) ; *Bubulcus coromandus*, Legge p. 1147 ; Oates & Blan. Vol. IV. p. 389.

*Description*.—Out of the breeding season the plumage is white with sometimes a wash of yellow on the forehead and fore-neck. In breeding plumage the head and greater part of the neck become golden



buff, sometimes with a brown, or pink tinge, while long dorsal plumes of the same colour are developed; the plumes do not extend beyond the tail.

Bill yellow; facial skin greenish yellow; iris pale yellow; legs black. the naked portion of the tibia yellow, and the soles greenish yellow.

Length 20; wing 9.50; tail 3.5; tarsus 3.5; bill from gape 3.

*Distribution*.—Abundant all over the low-country, ascending the river valleys for some little way into the hills. Common in India and Burma, ranging eastwards throughout China to S. Japan.

*Habits*.—This species wanders away from water far more than other Herons and constantly follows buffaloes and cattle in the fields, feeding on ticks and grasshoppers. It breeds in colonies on trees growing in the water, making the usual stick nest and laying three to five eggs of very pale green, averaging 1.71 by 1.32.

### 351. DEMIEGRETТА SACRA ASHA

#### The Indian Reef-Heron

Vernacular names not recorded.

*Ardea asha* Sykes, P. Z. S. 1832. p. 157 (Deccan); *Ardea gularis*, Legge p. 1136; *Leptorodius asha*, Oates & Blan. Vol. IV. p. 390.

*Description*.—Most birds are slaty blue, with a white patch on the chin, throat, and lower cheeks; the plumes on the back and breast are long, but not filamentous, and are worn all the year round; there is a crest of two long, narrow, ash gray feathers. A good many specimens, however, are pure white all over.

Young birds lack the ornamental plumes, and those of the dark variety are ashy gray. Some young birds are pied slaty blue and white, occasionally unsymmetrically.

Bill brownish yellow, paler at the tip and greenish at the gape; iris golden yellow; naked part of tibia and just below the knee brownish; the tarsus green.

Length 25; wing 10.5; tail 4; tarsus 4; bill from gape 4.5.

*Distribution*.—Found only in a few localities on the north and west coast of the Island. This sub-species extends along the west coast of India to the Persian Gulf.

*Habits*.—A rare bird, frequenting the open coast, especially where there are coral reefs, or the mud flats of estuaries. It has been found breeding near Chilaw about the end of May.

The nest is a large platform of sticks placed in mangroves, or on rocks. The eggs are said to be three in number, slightly pointed at each end, pale sea green in colour, and measuring about 1.70 by 1.30.

## 352. ARDEOLA GRAYII

## The Indian Pond-Heron

*Kana-kokkã*, Sinhalese ; *kuruttu-kokku*, *nuli-madayan*, Tamil.

*Ardea grayii* Sykes, P.Z.S. 1832 p. 158 (Deccan); *Ardeola grayi*, Legge p. 1150; Oates & Blan. Vol. IV. p. 393.

*Description*.—In breeding plumage the head and neck are grayish yellow, with an ashy tinge on the crown; chin and throat whitish; a crest of two to four white streamers; the feathers of the back and scapulars, which are long and filamentous, are deep maroon tinged with black, the outer scapulars being brownish to creamy buff; remainder of the plumage, including the wings, white, the tips of the primary quills tinged with brown.

In the off season adults have the head and neck blackish brown streaked with yellowish buff, the crown darker, and the buff streaks becoming wider on the lower neck; the crest wanting; chin and throat white; upper breast white streaked with brown; back, scapulars, and tertiaries glossy ash brown, the scapulars with paler shaft-streaks; remainder of plumage white.

Bill bluish at the base and on top, the sides of the upper mandible and the lower mandible yellowish, the tip black; iris bright yellow; legs greenish.

Length 18; wing 8; tail 3; tarsus 2.15; bill from gape 3.

*Distribution*.—Ubiquitous in the low-country, wherever there are paddy fields, or water; ascending to a fair height in the hills. Common throughout India and Burma, ranging from the Persian Gulf to the Malay Peninsula.

*Habits*.—May be found fishing in any little pond, stream, tank, or paddy field, and occasionally on the seashore. When standing still with its head drawn in, the white portions of the plumage are concealed and the bird is an inconspicuous object. As soon as it flies off it appears to transform itself into a white bird with startling suddenness. It breeds pretty nearly all the year round. I have taken eggs as late as August, and the breeding season begins again in the November rains. It builds in colonies on trees, making a small platform of twigs, and generally laying four greenish blue eggs measuring about 1.53 by 1.15.

## 353. BUTORIDES STRIATUS JAVANICUS

## The Indian Little Green Bittern

*Kokkã*, Sinhalese ; *thōsi-kokku*, Tamil.

*Ardea javanica* Horsf. Trans. L. S. *xvii*, p. 190. (1821). (Java); *Butorides javanica*, Legge. p. 1153; Oates & Blan. Vol. IV. p. 395.

*Description*.—Adults: head down to the eyes, and the occipital crest black glossed with green; a narrow, black band under the eye; the area between this and the black cap buff, or whitish; chin and throat white; a whitish band washed with brown down the middle of the fore-neck; remainder of the head and neck ashy gray tinged with blue; back ash coloured, rump dark gray, upper tail coverts and tail blackish, all washed more or less with green; scapulars and wing coverts glossy green, the long scapulars with ashy gray ends and white shafts; wing coverts and tertiaries edged with pale buff; wing quills blackish slate; secondaries and inner primaries tipped with white; lower parts slaty gray with a brown wash on the belly and thigh coverts.

Immature birds have the crown blackish brown with pale shaft stripes; upper parts, including the wings and tail, brownish, with pale, terminal spots on the scapulars and wing coverts, and white spots on the tips of the quills; lower parts streaky white and brown.

Bill black, yellowish underneath; naked skin of face yellowish green, dull livid in the breeding season; iris yellow, or reddish yellow; legs and feet greenish yellow, pale rufous in the breeding season.

Length 17.5; wing 6.8; tail 2.3; tarsus 1.8; bill from gape 3.

*Distribution*.—Fairly common all over the low-country, but often escapes notice owing to its skulking habits. Occurs throughout India and Burma, except in dry regions; extends E. and S. E. to S. China and Celebes.

*Habits*.—This is more of a river bird than most of our species, and may be found along the shady borders of streams, backwaters, and mangrove fringed lagoons, or in dark corners of tanks. It is generally solitary, and during the day time keeps mainly in the shade, feeding mostly at night. The breeding season is probably from April to July; the nest is a small structure of sticks placed low down in trees near the water, or among reeds; the three eggs are greenish white, and measure about 1.62 by 1.21.

### 354. NYCTICORAX NYCTICORAX NYCTICORAX

#### The Night-Heron

*Rê-kana-kokkû*, Sinhalese; *chen-nûrai*, Tamil.

*Ardea nycticorax* Linn. S. N. i. p. 239 (1766) (W. Europe); *Nycticorax griseus*, Legge p. 1165; Oates & Blan. Vol. IV. p. 397.

*Description*.—The crown and nape, back, and scapulars are black with a metallic green gloss; from the nape, the feathers of which are lengthened, spring two or three long, narrow, white streamers, which are dropped after the breeding season; forehead, together with a stripe over the eye, cheeks, and all the lower parts from chin to tail coverts

white; sides and back of the neck and sides of the body delicate, pale ash gray; wings, rump, and tail darker ashy gray, with a bluish, or pinkish tinge.

The immature plumage is strikingly different. The upper parts are brown, the crown almost black, with pale brown shaft-stripes; there are triangular, buff tips to the feathers of the back and wing coverts, and buff, or whitish spots on the tips of most of the wing quills; lower plumage whitish with broad brown streaks.

Bill black, paler at the base; iris blood red, or scarlet; naked facial skin yellowish green, dull livid in the breeding season; feet yellowish green, pale rufous in the breeding season.

Length 23; wing 11.5; tail 4; tarsus 3; bill from gape 3.8.

*Distribution*.—Found in scattered colonies throughout the low-country; locally distributed throughout India and Burma; occurs in N. Africa and the temperate and warmer regions of Europe and Asia.

*Habits*.—The birds roost in company on large trees during the day, departing at nightfall for their fishing grounds with a slow, heavy flight, during which they frequently utter a harsh "kwark." Like many other Herons they breed gregariously in thickets surrounded by swamps. The nest is the usual structure of sticks, and there are generally four eggs of pale sea green, measuring about 1.97 by 1.38. The breeding season appears to vary, depending on suitable conditions of weather and water supply. I have taken eggs in March, July, September, and December.

### 355. GORSACHIUS MELANOLOPHUS

#### The Malay Bittern

*Rê-kokkâ*, Sinhalese.

*Ardea melanolopha* Raffles, Trans. L. S. xiii. p. 326 (1832) (Sumatra): *Gorsachius melanolophus*. Legge p. 1169; Oates & Blan. Vol. IV. p. 399.

*Description*.—Adults: the crown and crested nape are black, tinged with ashy white; sides of head, including a band above the eye, sides of neck, and hind neck vinous chestnut; main portion of the upper parts cinnamon, with wavy, freckled lines of black; outer primary coverts black with white tips; wing quills black, the outer primaries with white tips, the rest with the ends chestnut freckled with white; upper tail coverts dull rufous brown; tail darker, almost black; chin and throat white; fore-neck and upper breast brownish buff streaked with black; abdomen mottled and streaked with white, black, and rufous; lower tail coverts mainly white.

Young birds are blackish on the crown and nape, with angular white, or buff spots. The upper parts are dull dark brown with wavy buff crossbars; wing quills blackish, tipped, or freckled at the tips with

white; lower parts rufous buff, streaked, speckled, and blotched with white and brownish black; chin and throat white with a few dark spots.

Bill black along the ridge, the remainder fleshy; iris golden yellow; facial skin slaty green; legs and feet greenish tinged with brown on the front of the tarsus.

Length 20; wing 10.5; tail 3.8; tarsus 2.75; bill from gape 2.5.

*Distribution*.—In Ceylon an occasional, north-east monsoon migrant, coming probably from Southern India. In India the species occurs and breeds on the Malabar Coast, in Assam and Burma, and extends eastwards through the Malay Peninsula to Borneo and the Philippines.

*Habits*.—Chiefly a forest bird, but most of the specimens procured in Ceylon appear to have been obtained round Colombo, in November, on their first arrival in the Island. Occasionally birds are obtained in the hills.

### 356. IXOBRYCHUS SINENSIS

#### The Yellow Bittern

*Méti-kokkā*, Sinhalese; *manal-nārai*, Tamil.

*Ardea sinensis* Gmel. S. N. i. p. 642 (1789) (China); *Ardetta sinensis*, Legge p. 1156; Oates & Blan. Vol. IV. p. 401.

*Description*.—Male: crown and nape black, the feathers with paler gray edges; sides of head and neck vinous, darkening to chestnut on the longer plumes of the hind-neck; back, scapulars, and tertiaries pale yellowish brown with a tinge of gray; wing coverts yellowish buff; primary coverts, wing quills, and tail slaty black; rump and upper tail coverts ashy, or bluish gray; chin, throat, and fore-neck light fulvous yellow; upper breast and abdomen buff, the long pectoral plumes concealing the lower breast feathers, which are brownish black with fulvous edges.

Female: the upper plumage is more rufous; the crown is streaked with rufous instead of gray; the back and scapulars are rufous brown, each feather edged with buff; the buff of the throat and fore-neck is streaked with tawny brown.

In young birds the upper and lower plumage is more streaked; the crown is brown with buff streaks, while the streaks on the fore-neck and breast are darker brown.

Bill brown on the ridge, pinkish brown beneath; naked skin on face green; iris golden yellow; tarsus dull flesh colour; toes pale yellow.

Length 15; wing 5.25; tail 1.8; tarsus 2; bill from gape 2.75.

*Distribution*.—Scattered throughout the low-country marshes, rare in the north and east, but fairly common in certain localities in the west and south. It occurs locally over India and Burma, but is generally rare; and is found through south-eastern Asia to Japan.

*Habits*.—This bird skulks about reeds and thick grass in marshes and swampy tanks. It is much more in evidence during the north-east than in the south-west monsoon. The majority of the birds either betake themselves to very secluded spots to breed, or are migrants. The breeding season is probably from May to August; the nest is a pad of grass hidden in a clump of rushes, or long grass; the eggs, three to five in number, are pale greenish white, measuring about 1.3 by .95.

### 357. IXOBRYCHUS CINNAMOMEUS

#### The Chestnut Bittern

*Méti-kokkā*, Sinhalese; *kuruttu-kokku*, Tamil.

*Ardea cinnamomea* Gmel. S. N. i. p. 643 (1789) (China); *Ardeiralla cinnamomea*, Legge p. 1162; *Ardetta cinnamomea*, Oates & Bian. Vol. IV. p. 402.

*Description*.—Male: crown, sides of head, and whole upper plumage, including the wings and tail, chestnut; the wing coverts a little paler; the shafts of the wing quills black; the crown is sometimes tinged with gray; chin, throat, and lower parts mainly tawny brown, with a white stripe down each side of the throat and a dark brown streak down the centre of the fore-neck; the lower breast feathers, which are concealed by the pectoral plumes, are blackish brown edged with buff.

Female: crown blackish; upper parts dull dark brown, lighter on the wing coverts and scapulars, both of which have buff edges notched with pale brown spots; wing quills chestnut, browner at the base; tail dull chestnut; sides of the head dull chestnut; the under parts tawny yellow, with dark brown streaks; a conspicuous, dark, chain-patterned streak down the centre of the chin, throat, and fore-neck.

Young birds resemble females, but the back and mantle feathers are more spotted on the edges with yellowish buff.

Bill yellow, the ridge dark brown; iris pale red, or yellow; legs and feet yellowish green; naked skin of face yellow in females, reddish purple in males.

Length 15; wing 5.5; tail 1.7; tarsus 1.90; bill from gape 2.6.

*Distribution*.—Found in marshy spots all over the low-country, and in the hills up to about 4,000 feet. It is generally distributed, but local in India, commoner in Burma. The range extends from Sind to China, the Dutch East Indies, and the Philippines.

*Habits*.—A solitary bird, and nowhere very numerous. It keeps more to standing paddy, long grass, or rushes near the water than to reed beds, or tangled swamps. It breeds in June and July; the nest is a pad of grass in a bush, or thick clump of grass; the five or six eggs are dull white ovals, measuring about 1.28 by 1.

## 358. DUPETOR FLAVICOLLIS FLAVICOLLIS

The Black Bittern (Pl. XX. Fig. 1.)

*Kalu-kokkā*, Sinhalese; *karu-nārai*, Tamil.

*Ardea flavicollis* Lath. Ind. Orn. ii. p. 701 (1790) (S. China); *Ardeiralla flavicollis*, Legge p. 1159; *Dupetor flavicollis*, Oates & Blan. Vol. IV. p. 403.

*Description*.—Male: the upper parts, including the wings, black with a tinge of slate gray; the sides of the head duller black; the lower cheeks slightly mottled with rufous; a golden yellow stripe down each side of the throat; chin, throat, and fore-neck motley white, chestnut, and black, the feathers of the fore-neck being buffy white on one web, black in the centre, and chestnut on the other margin; plumes on the side of the chest slate gray, with white margins; centre of breast and the abdomen slaty black, the abdomen more or less streaked with white.

Females are browner.

Young birds are deep brown, the feathers of the upper surface fringed with buff, while the breast and sides of the body are dusky brown.

Bill dusky reddish brown, lighter underneath; iris golden brown, sometimes with an outer ring of red; facial skin livid, or red brown; legs dark brown.

Length 23; wing 8; tail 2·7; tarsus 2·7; bill from gape 4.

*Distribution*.—Probably a partial migrant, but some birds remain to breed. Birds on passage have been noted in April from Bogawantalawa, at an elevation of 4,000 ft. in the Central hills. It is nowhere common, but is widely scattered over the low-country. It is extremely local in most parts of India, but commoner in Eastern Bengal and Burma, ranging eastward to China and the Dutch East Indies.

*Habits*.—This species often passes unnoticed owing to its skulking, nocturnal habits. It breeds about April, in which month I have twice found the nest in the North-Central Province. In each case it was a small structure of twigs placed on a low, thorny tree within three feet of the surface of a tank. The full clutch numbers four eggs, of very pale sea green, measuring about 1·65 by 1·25.

## Order XX. PHOENICOPTERI

### Family PHOENICOPTERIDAE

#### *Flamingoes*

These birds stand in an Order by themselves. In their length of neck and limb, and in their general structure, they approach the Storks : in the formation of the foot with its fully webbed front toes and rudimentary hind toe, and also in the fact that the young when hatched are covered with down and able to run, they resemble Ducks and Geese.

Flamingoes feed in shallow water with their inverted heads between their legs, and the bill is adapted accordingly. It is bent in the middle ; the lower mandible is large and practically fixed, while the upper mandible is small and movable. As with the Ducks, the whole bill, except the tip, is covered with soft skin, and the margins of the mandibles are furnished with lamellae, or ridges, with which the food is sifted from the water and soft mud in which the birds find their living.

Only one species is found in Ceylon.

#### 359. PHOENICOPTERUS RUBER ANTIQUORUM

##### The Common Flamingo

*Sīyak-kārayā*, Sinhalese ; *pū-nārai*, Tamil.

*Phoenicopterus antiquorum* Temm. Man. d' Orn. p. 587 (1820) (Europe) ; *Ph. roseus*, Legge p. 1092 ; Oates & Blan. Vol. IV. p. 408.

*Description*.—The whole plumage, except the wings, white, tinged more or less with rose pink ; the greater portion of the wing coverts and tertiaries almost scarlet ; primary and secondary quills black ; the axillaries and edge of the wing-lining scarlet ; the rest of the wing-lining largely black.

Young birds are grayish white on the head, neck, and body, the axillaries being the only feathers tinged with pink ; the wing coverts mainly brown with dark shaft-stripes ; wing quills brown.

Bill flesh coloured, black at the tip ; naked facial skin whitish pink ; iris yellow ; legs and feet pinkish red ; claws black.

Size variable. Males : length about 50 ; wing 17 ; tail 6 ; tarsus 14 . bill from cere 4.5. Females : length about 40 . wing 15 ; tail 5 ;



*Distribution.*—Found in large flocks on lagoons and the open coast round the dry zone from Puttalam, by Jaffna, to Hambantota; common about salt lakes in north-west India, and met with round the Indian coast as far E. as Bengal, but not in Burma. The present sub-species occurs from S. Europe and N. Africa as far East as India.

*Habits.*—Most of our birds are migrants arriving in October and leaving in April, but some birds undoubtedly loiter. Mr. J. M. Davies of the Civil Service saw a large flock in June on Kokkelai Lagoon in the North of the Trincomalee District. There are also traditions, which, however, have never been verified, that a breeding place lies in the extreme south of the Eastern Province. The nest is a mound of mud, raised a few inches above the surface of a shallow lagoon, and hollowed at the top. The birds breed in colonies. Two chalky white eggs are laid, measuring about 3.50 by 2.50.

## Order XXI. ANSERES

### Family ANATIDAE

#### *Geese and Ducks*

The *Anatidae*, which comprise the Swans, Geese, and Ducks, form the only Family of this familiar and world-wide Order.

The three front toes are fully webbed ; the hind toe is small, and set on the leg higher up than the others. The bill is straight and covered with a membrane of soft skin, except on the nail, or "dertrum," at the tip of the upper mandible. The edges of both mandibles are laminated, the ridged processes varying in development among the different genera. The tongue is large and toothed at the sides to correspond with the ridges of the mandibles. Many of the Family are migrants; those that breed in northern climates generally build a nest on the ground and line it with their own down; the species resident in warmer countries, as a rule, build in trees, and the warm nest-lining is more scanty, or altogether wanting. The eggs are numerous, white, or pale in colour, and unspotted. The nestlings when hatched are downy, and can run about and feed themselves. At the moulting season all the wing quills are shed at once, so that for some time the birds are unable to fly.

As regards classification into Sub-families, Stuart Baker has reverted from the scheme adopted by Blanford to the arrangement given by Salvadori in the British Museum Catalogue. According to this classification three of the Sub-families are represented by authentically recorded Ceylon species. Most of our ducks belong to the *Anatinae*, two species are referable to the *Plectropterinae*, while a single recent record of the Gray Lag Goose brings the *Anserinae* on to our list. One species—*Netta rufina*—of a fourth Sub-family, the *Fuligulinae*, is said by Layard to have occurred, but no specimen has actually been obtained. Wild Swans are not found further South than the Punjab and are very rare even in N. W. India.

The four Sub-families mentioned above may be differentiated as follows.

1. *Plectropterinae*. Hind toe not lobed and rather long ; nostrils nearer to the base than to the tip of the bill ; bill high at the base ; plumage glossy above and, in Ceylon species, white, or mainly white below ; tarsus about the same length as the bill.

2. *Anserinae*. Hind toe not lobed ; nostrils half way down the bill ; bill high at the base and rather conical ; plumage dull, the feathers with paler margins ; legs set well forward ; tarsus longer than bill.
3. *Anatinae*. Hind toe narrowly lobed ; nostrils nearer to the base than to the tip of the bill, save in one genus which does not occur in Ceylon ; bill flat and often wider towards the tip than at the base ; tarsus variable.
4. *Fuligulinae*. Hind toe broadly lobed ; outer toe as long as mid toe ; nostrils nearer to the base than to the tip of the bill ; bill generally slightly tapering ; tarsus noticeably shorter than bill.

### Sub-family PLECTROPTERINAE

This Sub-family, as the scientific name signifies, was originally founded for the reception of certain genera which possess a spur on the shoulder of the wing, but it has since been enlarged to include others which lack this feature. The distinguishing marks of the Sub-family are a hind toe which has no lobe and is rather long, a neck shorter than the body, and a glossy upper plumage, especially in the males, combined with comparatively long tail-feathers. The bill is rather high at the base and the nostrils lie considerably nearer to the base than to the tip. The tarsus is comparatively long and about equals the bill in measurement. Only two species, each belonging to a separate genus, are found in Ceylon. In both the males are of a dark, metallic, glossy hue above, and white underneath. Females are duller. In *Sarcidiornis* the size is large, the shoulder of the wing carries a spur, while the male sports a curious fleshy comb at the base of the bill. In *Nettopus* the size is very small, while the bill is almost conical and Goose-like.

#### *Key to Ceylon Plectropterinae*

1. Size large ; wing in males about 15, in females 11.25 ; male with a fleshy comb at base of bill.  
*Sarcidiornis melanota* (Comb-Duck).
2. Size small ; wing about 6.5.  
*Nettopus coromandelianus*. (Cotton-teal).

360. *SARCIDIORNIS MELANOTA**The Nukhta, or Comb-Duck**Kabalittiyā*, Sinhalese; *mūkkan-tāra*, Tamil.*Anser melanotos* Penn. Ind. Zool. p. 12. pl. 12 (1760) (Ceylon); *Sarcidiornis melanotos*, Legge p. 1063; Oates & Blan. Vol. IV. p. 423.

*Description*.—Male: head and neck white, interspersed with feathers of metallic black, which are thickest on the crown and down the back of the neck; lower parts and the lower neck all round white; upper back, wings, rump, upper tail coverts, and tail black glossed with green and blue, except the scapulars, which are glossed with rich purple; lower back dusky gray; the flanks vary from brownish gray to white with a gray tinge; a black bar runs from the upper back a short way down the side of the breast and another black bar from the rump to the lower flanks.

Males carry at the base of the bill a high, fleshy comb, which is largest during the breeding season.

Females are similar in plumage, but smaller; they lack the comb on the bill; the head and neck are blacker, there is less gloss on the upper plumage, while the lower back and rump are paler.

Young birds are brown where adults are black, and the white of the lower plumage is tinged with rust colour.

Bill and comb black; iris brown; legs and feet dull lead colour.

Length of male 30; wing 15; tail 6; tarsus 2.75; bill from gape 2.7. Females: length 26; wing 11.25; tail 4.5; tarsus 2; bill 2.

*Distribution*.—Found here and there on large tanks in the north and east of the Island. It occurs in suitable localities over the greater part of India and Burma, also in tropical and Southern Africa.

*Habits*.—This large Duck is nowhere common, but may be met with in small flocks on large, weedy tanks in the heart of the jungle. During the breeding season, about February and March, the birds pair off. The nest is a slight collection of sticks, leaves, grass and feathers placed in a hole low down in a large tree, or in the hollow angle where a large branch meets the stem. The eggs number seven to twelve, are polished ivory white, and measure about 2.40 by 1.70.

361. *NETTOPUS COROMANDELIANUS**The Cotton Teal, or Quacky Duck**Mal-sēruwā*, Sinhalese; *rājā-tāra*, Tamil.

*Anas coromandeliana* Gmel. S. N. i. p. 422 (1789) (Coromandel Coast); *Nettapus coromandelianus*, Legge p. 1066; *Nettopus coromandelianus*, Oates & Blan. Vol. IV. p. 433.

*Description.*—Males in the breeding season have the forehead, crown, and nape brown; the rest of the head, the neck, and lower parts are white, with a broad, black collar, glossed with green behind, round the neck; remainder of the upper parts down to the rump dark brown glossed with green and purple; the outer half of the primaries white, tipped with black; white tips to the secondaries; wing-lining brown; flanks white vermiculated with brown, which increases in density on the upper tail coverts; tail dark brown; under tail coverts mottled brown and white.

In winter the male loses the black collar, and resembles the female, but retains the white on the primaries and some of the gloss on the wings and back.

Female: crown and nape brown; a brown stripe from the base of the bill through the eyes; the rest of the head, the neck, and upper breast grayish white with stipplings and wavy bars of brown; remainder of under plumage dirty white mixed with brown, darkest on the flanks and under wing coverts; upper surface, wings, and tail brown; inner primaries and secondaries with white tips; upper tail coverts freckled white and brown.

Young birds resemble the females.

In breeding males bill black; iris red; legs and feet black, dusky yellow down the sides.

In females bill brown above, yellowish underneath; iris brown; legs and toes greenish yellow, webs black.

Length 13; wing 6.5; tail 2.75; tarsus 1; bill from gape 1.15. Females are slightly smaller.

*Distribution.*—Commonest in the north and east of the Island, but spreads during the north-east monsoon to the west and south-west. Occurs through most parts of India and Burma, and extends through south-eastern Asia to China, the Philippines, and Dutch East Indies.

*Habits.*—Very fond of weedy tanks, which it frequents in small flocks; occasionally, larger flocks may be seen, especially on large tanks during the hot weather, when smaller tanks are dry. These little Ducks fly low and fast, uttering their curious cackle, which sounds like "quacky-duck, quacky-duck." They breed mainly in the early part of the year, but I have seen newly hatched young in August. The nest is a scanty lining of down placed in holes in trees, or in old buildings. About eight to twelve eggs are laid, smooth ivory white, measuring about 1.65 by 1.28.

## Sub-family ANSERINAE

*Geese*

Geese, though they swim well, spend more of their time upon land and less upon water than do the Ducks, having the legs set further forward on the body and adapted for walking. The tarsus is fairly long and exceeds the bill in measurement. The nostrils are placed nearly half-way down the bill, which is comparatively short, high at the base and rather conical in shape. The nail is generally large, occupying the whole of the tip. The wings are long and broad, the tail rounded.

Geese are mostly gray, or brownish, with lighter edges to the feathers, giving the plumage a barred appearance. They are vegetarians feeding mainly on grass, or other green food. They are migratory and the sexes are alike in colour. Legge (*Birds of Ceylon* p. 1072, footnote) has recorded the conviction of several sportsmen that Wild Geese have, on occasion, been seen in Ceylon, but no specimen was actually obtained until March 1922, when a single young male *Anser anser* was shot in the Colombo District.

It is just possible that another common Indian species, *Anser indicus*, may some day turn up as a straggler. This species is more slender in build than the Gray Lag and the greater part of the plumage is a clear pale gray. Old birds can be told at once by the white head with two black bars on the nape. Young birds have the crown and nape dark brown without any black bars.

## 862. ANSER ANSER

## The Gray Lag Goose

*Pāteyā*, Sinhalese; *vātthu*, Tamil.

*Anas anser* Linn. S. N. i. p. 123. (1758). (Sweden); *Anser cinereus*, Legge. p. 1072. Note; *Anser ferus*, Oates & Blan. Vol. IV. p. 416.

*Description*.—Head, neck and upper back ash brown, the scapulars with lighter edges; the lower back and rump, the shoulder of the wing with the adjoining coverts, the winglet, the basal part of the primaries, the primary coverts and wing-lining are all ashy gray; remainder of wing brown, the secondary coverts with whitish edges; upper tail coverts and two outer pairs of tail feathers white; central tail feathers brown with white tips; lower parts from the neck grayish, or brownish white, the abdomen in old birds more or less blotched with black; flanks grayish brown with the tips and bases of the feathers pale ashy gray.

Young birds are less marked underneath and many have the lower parts almost white.

Bill, legs and feet vary from creamy white to flesh colour, or even dingy purplish red ; iris brown.

Dimensions rather variable : length about 32 ; wing up to 18 ; tail 6 ; tarsus 3.1 ; bill from gape 2.75. females and young birds are smaller.

*Distribution*.—The only specimen actually obtained in Ceylon is a small, young male which was shot by an ex-collector of the Museum in March 1922, about six miles from Kesbewa in the Colombo District. It was feeding with two others in a paddy field. This species breeds in N. Europe and Siberia, migrating in winter to S. Europe, N. Africa, and S. W. Asia. In winter it is common in N. W. India and occurs as far east as Assam and the Irrawaddy Valley. Further S. it is distinctly rare and a mere straggler.

*Habits*.—Where common the birds are found in large flocks, but stragglers are met with in small parties. They feed in the fields on young crops &c., from evening till morning, lying up during the heat of the day on sand-banks at the water's edge.

### Sub-family ANATINAE

#### *Ducks*

The true Ducks constitute a large and varied Sub-family, eighteen species being found in the Indian area. Nine of these have occurred in Ceylon, and it is possible that stray specimens of others may from time to time straggle to the Island.

In size they are generally smaller than Geese. The legs are rather short, set far back, and adapted more for swimming than walking ; the hind toe is narrowly lobed. The bill is usually broad and shallow, with the lower mandible narrower than the upper, into which it shuts, so that the lamellae are seldom apparent when the bill is closed. The nail, or "dertrum," at the tip of the upper mandible is, as a rule, bent downwards into a distinct hook. The nostrils, save in one genus not found in Ceylon, are situated less than half way from the base of the bill. In the majority of species the drakes before the breeding season moult into a bright nuptial dress, which they drop by a second moult as soon as breeding is over, assuming for the rest of the year a plumage similar, or almost similar, to that of the female. The drakes, with few exceptions, also differ from the ducks in possessing a bony bulb, or drum at the base of the windpipe. In most forms the exposed portions of the secondary wing quills, together with their coverts, are brilliantly coloured, and

especially when the wing is closed, form a ribbon-like mark known as the wing-bar, or "speculum." This is often more conspicuous in adult males than in females and young birds.

The nine species found in Ceylon are divided among eight genera and fall into two groups.

1. **Tree Ducks and Walking Ducks**—represented by two species of *Dendrocygna*, a genus very fond of perching on trees, and one species of *Casarca*. As in the *Plectropterinae*, so in this group, the tarsus is of approximately the same length as the bill; but the brownish red, or fox red plumage of the above three species will always serve to distinguish them.
2. **Surface-feeding Ducks**—In these the tarsus is noticeably shorter than the bill. The Drakes of all the six Ceylon species possess a brightly coloured wing-bar, and, with the exception of the Spotted-billed Duck in which the sexes are alike, assume a distinct breeding plumage. In the females of several species the wing-bar is duller, or almost wanting. All our species are migrants, several of them are commoner in North India than in the S. and are rather irregular in their visits so far South as Ceylon.

I have given below a fairly full key. As most of the Duck family are migrants and at times wander unexpectedly far afield during their winter migrations, it is quite possible that additions may from time to time, be made to our list. Should any sportsman chance to obtain a strange Duck which he cannot identify, I hope, that, if it is impossible for him to preserve the whole skin, he will save the head, legs and a wing and send them to the Museum for identification.

#### *Key to Ceylon Anatinae*

- I.—Tarsus approximately same length as bill; no wing-ribbon; lower parts uniform brownish, or foxy red.
  - (a.) Wing about 7·5; upper tail coverts maroon.  
*Dendrocygna javanica* (Common Whistling Teal).
  - (b.) Wing about 9; upper tail coverts creamy white.  
*D. fulva* (Larger Whistling Teal).
  - (c.) Wing over 12; upper tail coverts and tail black.  
*Casarca ferruginea* (Brahminy Duck).
- II.—Tarsus noticeably shorter than bill; wing ribbon always present in males, and generally in females.



(a.) Wing-coverts not lavender gray.

1. Bill and tail moderate; wing 10 to 11; wing-bar metallic purple and green, bordered with stripes of black and white.

*Anas poecilorhynchus poecilorhynca* (Spotted-billed Duck).

2. Bill moderate; tail short; wing 9.5 to 10.5; wing-bar black and white.

*Chautelasmus streperus* (Gadwall).

3. Bill rather narrow; tail short; wing about 7.25; wing-bar green shading into velvet black and bordered with white.

*Nettion crecca crecca* (Common Teal).

4. Bill widening slightly towards tip; tail long and pointed; wing 10 to 11; wing-bar in males bronze green with an outer border of black tipped with white; wing-bar in females represented merely by two whitish-bars.

*Dafila acuta* (Pintail).

(b.) Wing coverts lavender gray; bill widening slightly towards tip; tail short; wing 7.75; wing-bar in males glossy green between white bands; in females absent.

*Querquedula querquedula* (Garganey Teal).

- B. Bill spatulate; wing about 9.5; wing-bar in males glossy green, in females almost absent.

*Spatula clypeata* (Shoveller).

### 363. DENDROCYGNA JAVANICA

#### The Whistling Teal

*Sēruwā*, Sinhalese; *chemba-tāra*, Tamil.

*Anas javanica* Horsf. Trans. L. S. xiii. p. 199 (1821) (Java); *Dendrocygna javanica*, Legge p. 1069; Oates & Blan. Vol. IV. p. 430.

*Description*.—Forehead, crown, and nape brown, darkest on the nape; sides of head and neck fulvous gray, becoming almost white on the throat and chin; back and scapulars dark brown, each feather with a rufous tip; the upper tail coverts and most of the wing coverts deep maroon; the greater wing coverts, the wing quills, tail, lower back, and rump brownish black; lower parts ferruginous, shading on the upper breast to yellowish brown, and on the vent to whitish.

Females are similar, but slightly paler on the under parts.

Young birds have the under parts uniformly dull pale brown.

Bill, legs, and feet brownish blue; iris brown; eyelids yellow.

Length 17; wing 7.5; tail 2.2; tarsus 1.75; bill from gape 2.

*Distribution*.—Abundant in most parts of the low-country. Occurs almost throughout India and Burma, extending eastwards to China and the Dutch East Indies.

*Habits*.—Found on almost every tank in the dry zone of the low-country, and on marshes, weedy backwaters, and flooded paddy fields in parts of the wet zone where there are no tanks. The birds move about a good deal, and appear to be commonest during the rains of the north-east monsoon. It is probable that many of the birds seen then are migrants from Southern India. At that time of year I have heard whistling from flocks passing over Colombo during the night. This species is fond of roosting and perching on the dead branches of trees near water. Its cry is a peculiar whistling uttered while on the wing. It breeds mostly in the early part of the year, but if the weather conditions and water supply are favourable, it will breed right on to June, or even August. The nest may either be formed by beating down a small circle of reeds, rushes, or grass in swampy ground, or consist of a scanty lining of grass and feathers placed in the angle made by the junction of a large bough with the stem of a tree standing in the water. The eggs are broad, almost regular ovals, white and smooth, but not glossy. They measure about 1.89 by 1.49, and the full clutch varies from seven to twelve, or even more.

### 364. DENDROCYGNA FULVA

#### The Greater Whistling Teal

*Sēruwā*, Sinhalese; *chemba-tāra*, Tamil.

*Anas fulva* Gmel. S. N. i. p. 530 (1789) (Novo Hispania); *Dendrocygna fulva*, Legge p. 1226 a, Append. iii; Oates & Blan. Vol. IV. p. 432.

*Description*.—The bird is, in general, similar to the last species, but considerably larger, rather darker on the upper parts, and has the following differences: there is a black stripe down the back of the nape; the chestnut on the wing coverts is not nearly so pronounced; the upper tail coverts are creamy white, while the sides and front of the lower neck are whitish, with small and often inconspicuous, dusky streaks.

Bill blue black; iris brown; eyelids pale livid; legs and feet dark lead colour.

Length 20; wing 9; tail 2; tarsus 2.25; bill from gape 2.4.

*Distribution*.—A few specimens were once obtained near Mannar, there is one record from Balapitiya, S. P. and I have been told that it

has been seen near Giant's Tank. It is occasionally found in various parts of India and Burma, but its main habitat is in Central and South America, Tropical and South Africa, and Madagascar.

*Habits*.—Similar to those of the Common Whistling Teal; the birds associate in small flocks, and should be looked for on tanks in the north of the Island.

### 365. CASARCA FERRUGINEA

#### The Brahminy Duck

*Loku-sēruwā*, Sinhalese; *tāra*, Tamil.

*Anas ferruginea* Pall. Voeg's Cat. Adum. p. 5 (1764) (Tartary); *Tadorna casarca*, Legge p. 1070; *Casarca rutila*, Oates & Blan. Vol. IV. p. 428.

*Description*.—Male: head and neck creamy buff, darkening to orange on the lower neck, which is encircled by a narrow, blackish ring; this ring disappears in the winter months; upper and lower body plumage mainly fox red, or orange brown; lower back and rump vermiculated with black; the upper tail coverts, tail, and wing quills black, the secondary quills being metallic green, glossed with bronze on the outer webs; the inner tertiaries fox red on the outer web and gray on the inner; wing coverts whitish buff; wing-lining white.

Females are smaller and duller, have whitish heads, and never assume the black collar.

Bill, legs, and feet blackish; iris dark brown.

Length 26; wing 14.6; tail 5.5; tarsus 2.5; bill from gape 2.2. Females: length 23; wing 13.

*Distribution*.—A rare winter visitor to the lagoons on the north coast from Mannar to Mullaittivu. This is a migratory species, breeding from Southern Europe and Northern Africa to Tibet, and wintering southward. It is a winter visitor to India, parts of Burma and China.

*Habits*.—This species is partly herbivorous, eating grass and green crops. The birds generally associate in pairs, but occasionally gather into flocks. During the day time they usually sit on the sand by the edge of the water, and are not often seen swimming. They are good walkers. In India they mainly frequent the banks of rivers.

### 366. ANAS POECILORHYNCA POECILORHYNCHA

#### The Spotted-billed Duck

*Sēruwā*, Sinhalese; *tāra*, Tamil.

*Anas poecilorhynca* Forster, Penn. Ind. Zool. xiii. p. 28 (1781) (Ceylon); Legge p. 1073; Oates & Blan. Vol. IV. p. 440.

*Description*.—Forehead, crown, nape, and a band through the eye dark brown with paler streaks; the sides of the head and the neck

whitish with brown streaks; chin and throat unstreaked; rest of the upper parts brown, darkening almost to black on the tail, with pale edges to the feathers on the upper back and scapulars, and a slight green gloss on the tail coverts; breast and abdomen buff white with large brown spots; on the lower abdomen the ground colour gradually deepens to the hue of the spots; under tail coverts deep sooty brown; primaries dark brown; outer webs of the secondaries glossy purple, shading to peacock green, with an outer border of black, narrowly edged with white; outer webs of tertiaries white; greater wing coverts brown, with a sub-terminal white band and velvet black tip; wing-lining white. The sexes are alike.

Bill black, with a broad orange yellow tip and a blackish nail; a naked orange, or red patch on each side at the base of the upper mandible; iris reddish brown; legs and feet orange yellow, claws black.

Length 24; wing 11; tail 4.5; tarsus 1.75; bill from gape 2.5.

Females are rather smaller.

*Distribution*.—In Ceylon probably a winter migrant from India. It is occasionally found during the north-east monsoon on some of the larger tanks in the north and east of the Island. This sub-species is resident practically throughout India.

*Habits*.—A fresh-water species, which generally goes about in pairs, or small troops. It is rather heavy on the wing.

### 367. CHAULELASMUS STREPERUS

#### The Gadwall

*Sēruwā*, Sinhalese; *tāra*, Tamil.

*Anas strepera* Linn. S. N. i. p. 125 (1758) (Sweden); not in Legge; *Chaulelasmus streperus*, Oates & Blan. Vol. IV. p. 440.

*Description*.—Male in breeding plumage; head and neck grayish white, speckled with brown, most thickly on the crown and nape; lower neck, upper back, scapulars, flanks, and upper breast whitish with brown, wavy bars, which become crescent-shaped on the breast; lower back dark brown, turning to black on the rump and upper tail coverts; tail and wing quills grayish brown; the outer webs of the middle secondaries black, of the inner secondaries white; the smaller wing coverts brown, the median chestnut, the greater velvet black; lower breast and abdomen dirty white, with indistinct, brown bars towards the vent; the under tail coverts black. In the off season drakes assume female plumage.

Female: head and neck streaky brown and white, darkest above; the upper parts dark brown mottled with buff on the upper back and

scapulars; breast and flanks rufous buff spotted with brown; abdomen dirty white; wings as in the male, save that the chestnut of the median wing coverts is wanting, or greatly diminished.

Young birds resemble females, but have no chestnut or black on the wings, while the lower parts are spotted throughout.

Bill in males lead colour, or blackish brown, and in females orange; iris brown; legs yellowy brown to dull orange.

Length 20; wing 10.5; tail 3.4; tarsus 1.5; bill from gape 2.1.

Females are smaller; wing about 9.5.

*Distribution*.—A recent addition to the birds of Ceylon. A single specimen, now in the Museum, was secured a few years ago at Palatupana, in the Hambantota District. A winter visitant to Northern India and Upper Burma; rare in the south. Found nearly all over the Northern Hemisphere, breeding in the temperate zone and wintering further southwards.

### 368. NETTION CRECCA CRECCA

#### The Common Teal

*Sēruwā*, Sinhalese; *tāra*, Tamil.

*Anas crecca* Linn. S. N. i. p. 125 (1758) (Sweden); Legge p. 1083; *Nettion crecca*, Oates & Blan. Vol. IV. p. 443.

*Description*.—Male: the head and upper neck chestnut; a broad band of metallic green surrounds the eye and runs backwards to the nape; a narrow, buff line runs from the chin to the front of this green band, and then borders it above and below; chin and feathers edging the upper mandible almost black; lower neck all round, upper back, inner scapulars, and flanks minutely barred black and white; outer scapulars buff with a broad, black edge on the outer web; lower back and rump brown, turning to black on the tail coverts, which are edged with dark buff; tail and wing quills brown; the outer secondaries velvet black edged with white; outer webs of inner secondaries metallic green; a velvet black band on the outer web of the first tertiary; the outer wing coverts whitish buff, the remainder dark brown; breast white with black drops; abdomen white, tinged at times with brown; under tail coverts black in the centre and buff at the sides. Males, from about June to October, assume a plumage like that of females.

Female: upper parts dark brown, with buff, or reddish edges to each feather; lower parts dirty white, sometimes with a reddish tinge; the sides and under part of the head and neck whitish, speckled with brown, the upper part of the head and neck being darker; wings and wing-bar as in males, but duller, while the larger secondary coverts are white, or buff.

Young birds resemble females, but have pale edges to the wing coverts. Bill almost black ; iris hazel ; legs and feet brownish gray.

Length 14·5 ; wing 7·25 ; tail 3 ; tarsus 1·2 ; bill from gape 1·7. Females are rather smaller.

*Distribution*.—An irregular visitant during the cold weather, chiefly to the north of the Island. At this season it is found nearly all over India and Burma. It occurs throughout Europe, Asia, and Northern Africa, breeding in the north temperate zone and wintering in the south.

*Habits*.—In some years this Teal is fairly plentiful among the lagoons in the north of the Island ; at such times it spreads inland over the tank country as far south as Anuradhapura and down the east coast to the lagoons of the Hambantota District. It flies in considerable flocks, resting during most of the day and flying to its feeding grounds at sunset.

### 369. DAFILA ACUTA.

The Pintail (Pl. XX. Fig. 2.)

*Sēruwā*, Sinhalese ; *tāra*, Tamil.

*Anas acuta* Linn. S. N. p. 126 (1758) (Sweden) ; *Legge* p. 1076 ; *Dafila acuta*, Oates & Blan. Vol. IV. p. 447.

*Description*.—Male : the head and under-side of the neck dark brown ; hind-neck black ; on each side of the neck is a white stripe, which meets the white of the under parts ; the lower hind-neck, the back, sides, and flanks dark brown, with fine, wavy markings of light gray ; larger scapulars velvet black edged with whitish, or light brown ; upper tail coverts black and gray ; tail black ; wing coverts grayish brown, the last row bordering the wing-bar being tipped with cinnamon ; primary quills brownish gray ; the secondaries have the outer webs bronze green and purple and the ends black, tipped with white ; the innermost secondary has the outer web black with a whitish bar inside ; tertiaries gray with a velvet black stripe ; breast and abdomen white, speckled towards the vent with gray ; lower tail coverts black, the outside feathers with a whitish border. From June to October the male resembles the female, but retains the wing-bar.

Female : dusky gray above, with irregular buff, or white bars on the back and scapulars ; the greater wing coverts and the secondaries are tipped with white, thus forming two white bands across the wing ; there is no bright wing-bar ; primaries brownish gray ; chin and throat whitish ; the sides of the head and fore-neck white speckled with dark brown markings, which are more distinct on the lower neck ; lower parts, flanks, and under tail coverts whitish tinged and streaked with dusky brown.

Young males resemble females, but show traces of the wing-bar.

Bill black, dull lead blue on the sides ; iris dark brown ; legs and feet gray black.

Length 22 to 29 ; wing 11 ; tail 5 to 8.5 ; tarsus 1.6 ; bill from gape 2.25. Females are smaller ; wing 10.

*Distribution*.—Appears to visit the lagoons in the north and north-west of the Island fairly regularly from November to about March. A winter visitor to scattered districts throughout India and Burma. It occurs almost throughout the Northern Hemisphere, breeding near the Arctic Circle.

*Habits*.—This is mostly a fresh-water bird, but with us it seems to be confined to coastal lagoons, which, however, at the season of its visit are flooded with rain water and become brackish, in some places nearly fresh.

### 370. QUERQUEDULA QUERQUEDULA

#### The Garganey Teal (Pl. XX. Fig. 3.)

*Sēruwā*, Sinhalese ; *tāra*, Tamil.

*Anas querquedula* Linn. S. N. i. p. 124. (1758) (Sweden) ; *Anas circia*, Legge p. 1080 ; *Querquedula circia*, Oates & Blan. Vol. IV. p. 452.

*Description*.—Male in breeding plumage : the top of the head, from crown to nape, brownish black ; a white stripe from the front of the eye to the side of the nape ; the chin black ; the remainder of the head and neck rufous brown finely streaked with white ; back, rump, and upper tail coverts brown with pale edges to the feathers ; the scapulars, which are elongated, black with white shaft-stripes ; the outer webs of the outer scapulars and the wing coverts lavender gray ; the tips of the secondary coverts white ; tail feathers and primary quills dark brown ; the secondaries with glossy green outer webs and white tips, tertiaries dark brown with narrow, white borders ; breast buff, or brownish with concentric bars of dark brown ; abdomen white, speckled with brown towards the vent and on the tail coverts ; the flanks marked with narrow, wavy, dark lines.

In the off season males resemble females, but retain the bright wing bar and lavender gray wing coverts.

Female : upper parts brown, with pale borders to each feather ; the top of the head dark brown ; a buff spot on the lores, and a white stripe running back from above the eye ; chin and throat whitish ; the sides of the head and neck and the fore-neck white, streaked with brownish black ; the wing coverts grayish brown, or ash coloured ; the wing-bar is absent, or is merely a faint tinge of bronze green between the white bars formed by the tips of the secondary coverts and of the secondary quills ; the breast and abdomen white, spotted towards the vent and on the flanks and lower tail-coverts with brown.

Young males resemble the females.

Bill blackish brown ; iris hazel ; legs and feet lead colour to greenish. Length 16 ; wing 7.75 ; tail 2.75 ; tarsus 1.1 ; bill from gape 1.75.

Females are rather smaller.

*Distribution*.—A winter visitor, chiefly to the northern lagoons, but sometimes extending down the east coast as far as Hambantota. Found at this season throughout India and Burma. It is a migratory species, breeding in Central Europe and Asia and wintering southwards.

*Habits*.—Very similar to those of the Common Teal. Like that species, it keeps, in Ceylon, generally to lagoons near the coast, though mainly a fresh-water bird.

### 371. SPATULA CLYPEATA

#### The Shoveller

*Sēruwā*, Sinhalese ; *tāra*, Tamil.

*Anas clypeata* Linn. S. N. i. p. 124 (1758) (Sweden) ; *Spatula clypeata*. Legge p. 1086 ; Oates & Blan. Vol. IV. p. 452.

*Description*.—Male in breeding plumage : head and upper neck glossy green ; lower neck, breast, and shorter scapulars pure white ; the feathers of the back dark brown with paler edges ; the rump with the upper and under tail coverts black glossed with green ; tail dark brown, the outer feathers edged with white ; the wing coverts and outer webs of the two longest scapulars pale bluish gray ; the rest of the long scapulars are black with broad, white shaft-stripes ; wing quills brown ; the wing-bar on the secondaries bright green bordered by a white bar formed by the outer wing coverts ; tertiaries glossy greenish black with a whitish stripe along the shafts ; lower breast and abdomen chestnut ; the feathers round the vent and the upper flanks finely barred with buff ; a patch of white on the lower flanks. Males in the off season resemble females, but are more richly coloured.

Female: feathers of the upper parts brown with broad, rufous margins ; the scapulars and upper tail coverts with concentric bands of buff, or rufous ; the wing coverts are duller, and the wing-bar less glossy than in the male ; under parts reddish, or brownish buff, speckled with brown.

Bill of male in full plumage black, in females dark brown above, lighter underneath ; iris hazel brown in females, yellow, or orange in males ; legs orange, or red.

Length 20 ; wing 9.5 ; tail 3.75 ; tarsus 1.4 ; bill from gape 3.

Females are rather smaller.

*Distribution*.—An occasional winter visitor to the lagoons on the north coast and more rarely in the S. E. as at Yala ; rare in the South of India and Burma, much commoner in N. India. It is found over most



of the Northern Hemisphere, breeding in temperate climates. Layard once found a female with nestlings near Jaffna in March.

*Habits*.—This is usually a *fresh-water species*, found in *small flocks* round tanks and marshes. It nests in dry, secluded spots in the middle of a swamp. The nest is made of flags and rushes and lined with down, the feathers of which are small, and dark brown with whitish centres. The eggs, 8 to 12 in number, are smooth grayish green, or stone green, and measure about 2.17 by 1.48.

### Sub-family FULIGULINAE

#### *Diving Ducks*

One species—*Netta rufina*—The Red-Crested Pochard, is reported by Layard to have been seen by him near Jaffna, but no specimen has actually been obtained in Ceylon. The *Fuligulinae* may be distinguished by their broadly lobed hind toe, and their long outer toe, which equals, or exceeds in length the middle toe. I give below a full description of *Netta rufina* in case any sportsman comes across it. It is a migrant species breeding in S. Europe and Central Asia, and visiting N. India in some numbers during the winter. It is generally met with on large sheets of open water.

#### *Netta rufina Pallas*

##### *The Red-crested Pochard*

*Description*.—Male : head, throat, and upper neck reddish chestnut, paler on the crown and rufous buff on the full, bushy crest ; lower neck all round and upper breast glossy brownish black, which changes on the lower breast and abdomen to glossy brown ; the middle of the back lighter brown, darkening to brownish black on the rump and upper tail coverts, which are slightly glossed with green ; tail brown ; primaries white at the base and whitish brown outside, the tips of all, and the outer webs of the first five quills being dark brown ; secondaries creamy white, with an outer, brown border narrowly edged with white ; the tertiaries and most of the wing coverts are grayish brown ; the coverts near the edge of the wing and the wing-lining are white, as is a large area on the flanks and sides of the body. Males in the off season resemble females, but are more richly coloured, and have a crest.

Female : There is no crest ; the upper plumage is grayish brown, darkening to blackish brown on the rump ; there is no white on the wing

coverts, and the secondaries are grayish white ; otherwise the wings and tail resemble those of males. The under parts are grayish white.

Bill in males vermillion red, the nail whitish pink ; in females the bill is black, becoming reddish towards the tip ; iris in males reddish brown, in females brown ; legs and feet in males orange red, in females brownish orange.

Length 21 ; wing 10·5 ; tail 3·5 ; tarsus 1·75 ; bill from gape 2·25. Females are slightly smaller.

## Order XXII. PYGOPODES

### Family PODICIPEDIDAE

#### *The Grebes*

The Grebes belong to an Order represented in the Indian area by a single genus, of which only one species is found in Ceylon. The bill is fairly short, straight, and pointed. The legs are placed very far back; the small hind toe is placed above the level of the others and is lobed; the front toes are furnished each with a separate, broad fringe of web, the fringes uniting only at the base of the toes. Grebes are expert swimmers and divers, but bad walkers, and seldom leave the water. Their wings are short and pointed, and their flight is usually an agitated scurry along the top of the water; but, once they have mounted, they have powers of flying which enable them to travel long distances. The tail is practically wanting. The nest is composed of floating water weed, or other herbage; the eggs are white; the young when hatched are covered with down, and are able to swim at once.

#### 372. *PODICEPS RUFICOLLIS ALBIPENNIS*

##### *The Indian Little Grebe*

*Diya-sēruwā*, Sinhalese; *mukkuluvān*, Tamil.

*Tachybates albipennis* Sharpe, Bull. B.O.C. iv. p. 4 (1894). (Peninsular India); *Podiceps fluvialis*, Legge p. 1059; *P. albipennis*, Oates & Blan. Vol. IV. p. 475.

*Description*.—In breeding plumage the chin, lores, front of cheeks, forehead, crown, and hind neck are blackish brown; side of head up to the eye, throat, and fore-neck chestnut; upper parts dull dark brown; the wings paler, the primaries being white at the base and the secondaries almost wholly white; abdomen silky white, which colour mingles gradually on the breast, flanks, and vent with the brown of the upper parts.

In the off season the crown and hind-neck are brown; the chin turns white, and the chestnut of the head and neck is replaced by pale rufous buff.

Young birds are paler brown above, white underneath, and pale rufous on the side of the head and neck.

Bill black with a white tip, greenish, or yellowish at the base and round the gape; iris reddish brown; legs and feet blackish green, the inside of the tarsus pale olive brown.

Length 9; wing 3·9; tarsus 1·3; bill from gape ·9.

*Distribution*.—Found all over the low-country wherever there are suitable sheets of water; it has been seen on the Nuwara Eliya Lake; occurs throughout India and Burma.

*Habits*.—This species may be found in little flocks on most tanks and still, weedy stretches of water. I have taken eggs in December and again in June. The nest is usually a large, round blob of floating water weed, and the eggs are always covered over with wet weed when the bird leaves them. They are long, narrow ovals, dull white when first laid, but soon discoloured as incubation proceeds. The usual number is three to five; the average size of 18 eggs is 1·40 by ·98.

## GLOSSARY

The following short glossary comprises the few technical terms, used in this volume, which may require explanation to beginners ; also a few local terms, names of trees &c.. for the information of those unacquainted with this Island.

- Aegithognathous* : (See under *Vomer*).
- After-shaft* : A miniature feather, springing from the inner surface of the shaft of the main feather at its base. It is found only in certain Orders and is usually most developed in the smaller contour feathers. It can generally be well seen in the breast-feathers of a Hawk, or Eagle.
- Axillaries* : The long feathers springing from the *axilla*, or armpit of the wing.
- Barb, barbule* : The barbs are the series of thin, flat plates which form the web of a feather. The barbs in turn give off barbules in the same way as they themselves are given off by the shaft. The barbules generally terminate in microscopic hooklets, which hold the barbs together so as to make the web into a continuous, almost air-tight surface.
- Cabook* : The local term for laterite, a clayey decomposition product, which in many places lies in fairly thick beds over the unaltered crystalline rock beneath it. It is fairly soft when first quarried, but soon hardens with exposure.
- Cadjan* : The plaited leaf-frond of the coco-palm. Cadjans are used extensively for thatching roofs ; also for the walls of temporary huts, partitions, fences &c.,
- Cere* : The skin, generally soft and somewhat swollen, which in many Orders and Families covers the base of the upper bill. It is well developed in the Hawks and Parrots.

- Chena* : (1) A system of cultivation in which a piece of jungle is felled and burnt, so that the ashes may fertilize the soil. The land is then sown with some kind of dry grain. After one or two crops have been taken off the jungle is then allowed to grow again for about 7 to 12 years before it is once more felled and burnt for cultivation.
- (2). The name is applied to jungle land which is being, or has been so cultivated, and on which the forest growth has not attained any great size.
- Contour-feathers* : The feathers which appear on the surface of the body, as opposed to down-feathers &c ; also the body plumage as opposed to the wing and tail quills.
- Coverts* : The smaller feathers of the wings and tail which overlie the quills. In the wing the primary-coverts are those which overlie the primaries. Overlying the secondaries are three series, the lesser, median and greater coverts. (See diagram p. 7 Nos. 25-28 ; 30 and 32).
- Culmen* : ( See diagram p. 7 No. 10 ). The upper profile of the beak.
- Decomposed* : A feather is said to be decomposed when the barbs of the web are not held together by barbules. Such feathers have a fluffy appearance as in the dorsal plumes of Egrets.
- Desmognathous* : (See under *Vomer*).
- Eliyas* : Flat, or gently undulating stretches of grass land, more or less interspersed with clumps of jungle, found on the table-lands at high elevations, principally round about Nuwara-Eliya and the Horton Plains. The Sinhalese name for the Horton Plains is "Maha-Eliya" i.e. "The great eliya."
- Festoon* : The wavy outline in the cutting edge of the upper mandible ; it is well developed in some species of Birds-of-Prey.
- Flanks* : The parts of a bird's body covered by the closed

- Frontal-shield* : A backward prolongation, of the soft, outer covering of the bill, over the forehead, as in some species of the Rail Family.
- Gape* : (See diagram. p. 7 No. 11.) The angle at the junction of the two mandibles of the bill.
- Gular* : as in *gular-pouch*, and *gular-skin* : the naked pouch, or skin on the upper part of the throat.
- Hallux* : (See diagram p. 7 No. 34.) The hind toe of a bird.
- Inter-scapulars* : The feathers of the upper back, between the shoulder-blades.
- Jak* : (*Artocarpus integrifolia*) : A large tree with fairly thick foliage, smooth, glossy leaves and enormous fruit. A native of S. India and Malaya, grown nearly all over the Island both for its fruit and timber.
- Kaju* : (*Anacardium occidentale*) : A fairly large, spreading tree with large, leathery leaves. The fruit is the well-known cashew-nut. It is said to be a native of the West Indies, but is well naturalized in Ceylon and is commonest in moderately dry districts near the sea.
- Kitul* : (*Caryota urens*) A large, handsome, wild palm, with rather feathery, drooping fronds. It yields excellent sweet toddy, which is obtained by bruising and tapping the immature flower-spathe.
- Kurakkan* : (*Eleusine coracana*) : The *ragi* of S. India. A small, but prolific species of dry-grain, probably introduced into Ceylon, but thoroughly acclimatized; a favourite chena crop, especially in the drier districts.
- Lantana* : (*Lantana aculeata*) : A sturdy shrub, belonging to the Verbena family, with numerous clusters of small brick red flowers. Said to have been introduced into Ceylon by Sir Hudson Lowe, about 1825. It has spread rampantly and now covers huge stretches of country, especially in the S. of the Island, forming dense, impenetrable thickets.
- Loitering* : Individuals of a migrant species are described as "loitering" when instead of migrating to

- their usual breeding regions, they spend the summer months in Ceylon. Loiterers are generally immature birds. They very rarely breed, and seldom even assume the full breeding plumage.
- Lores* : (See diagram p. 7 No. 4.). The space in front of the eye.
- Maidan* : An open, grassy plain, parade ground, or green, in, or near a town. ( See Yule and Burnell's " Glossary of Anglo-Indian Words " under *Mydan*.)
- Mana-grass* : (*Cymbopogon confertiflorus*): The coarse, rather tussocky grass which covers the patanas &c. It is akin to the lemon-grass and citronella grass. In the open, where grazed upon and periodically burnt, it seldom grows more than a foot high, but in ravines, or where protected by bushes, it grows up much higher.
- Mandibles* : ( See diagram p. 7 Nos 8-9.): The two halves of the beak.
- Mantle* : The area roughly covering the wing coverts and the upper back between the wings.
- Median Coverts* : (See under *Coverts*.)
- Nellu* : The Sinhalese name for a variety of species of *Strobilanthes*, a genus of the Acauthus family. They are gregarious, herbaceous plants, which often cover large patches in the undergrowth of hill-jungles. Some forms attain a height of 10, or 12 feet and have quite woody stems. The plants flower simultaneously at intervals of several years. The name is also given to species of an allied genus, with similar habits, which occur in some of the low-country forests.
- Palu* : ( *Mimusops hexandra* ): One of the largest and most useful hard-wood trees found in the drier forests. It generally carries a long, straight trunk with a few large branches. The leaves are small, broad and oval, with short stalks. The fruit is a small, red, juicy berry.
- Patana* : Open stretches of grass land which cover large extents of the Ceylon Hills; especially in upper



- Uva and the adjacent portions of Sabaragam-uwa and the Central Province.
- Primaries* : (See diagram p. 7 No. 22) : The wing quills which spring from the pinion, or hand of the wing.
- Rictal bristles* : (See diagram p. 7 No. 12) The bristles surrounding the "rictus," or gape of the bill.
- Scapulars* : (See diagram p. 7 No. 21.) : Those feathers of the back which lie along the "scapula," or shoulder blade.
- Scutellated* : Covered with over-lapping scales, or plates.
- Secondaries* : (See diagram p. 7 No. 23.) : The wing quills which spring from the fore-arm of the wing. The inner secondaries ( see diagram No. 24 ) spring from the upper arm.
- Suriya* : ( *Thespesia populnea* ) : A smallish tree with a gnarled trunk, rough bark, egg-shaped, pointed leaves and handsome, yellow flowers. It is probably indigenous in the dry zone near the sea, and in these parts is often planted as a shade tree in road-side avenues.
- Syndactylic* : With the front toes united at their bases.
- Talawa* : A grassy stretch of hill-side, or of more level park-country scattered over with trees ; also applied to a meadow-land surrounded by forest.
- Tarsus* : (See diagram p. 7 No. 33) : Generally used in Ornithology to describe the portion of the leg above the toes, and below the tibia. Strictly speaking, this portion of a bird's leg corresponds to the metatarsus, plus the lower half of the ankle, in the leg of a mammal. As a matter of scientific accuracy, it should more correctly be termed the metatarsus.
- Tertiaries* : (See diagram p. 7 No. 24.) : The wing-quills springing from the upper arm of the wing. They are now more generally known as inner secondaries.
- Tibia* : The portion of a bird's leg between the tarsus and the thigh.
- Vomer* : If one examines the under surface of a bird's skull in the region of the palate, there appears, in the centre, a more or less rod-shaped bone known as the *sphenoidal rostrum*; in front

of this is the *vomer*. In some orders the *vomer* is reduced to a mere spicule, as in the *Gallinae*. From the sides of the upper jaw two long processes, known as the *maxillo-palatines*, project towards the *vomer*.

- (1.) When the *vomer* is pointed in front, and the *maxillo-palatines* are separated both from it and each other, as in the Fowl, the skull is termed *schizognathous*.
- (2.) When the *maxillo-palatines* meet in the middle and form a bridge in front of the *vomer*, as in the Duck, the skull is termed *desmognathous*.
- (3.) When, as in the Crow, the *vomer* is broad and abruptly cut off in front, while the *maxillo-palatines* pass underneath it, but do not join up with each other, the palate is termed *aeithognathous*.

*Wing-lining* :

The coverts on the under side of the wing.

*Winglet* :

(See diagram p. 7 No. 29.): The group of small feathers springing from a small joint, at the end of the wing, corresponding to the human thumb.

*Zygodactylic* :

A birds' foot is termed *zygodactylic* when the toes are arranged in pairs, with the 1st and 4th toe directed backwards, the 2nd and 3rd toes forwards.

# · INDEX OF ENGLISH NAMES.

	PAGE		PAGE
Adjutant, Smaller .. ..	426	Bustard-Quail, Ceylon .. ..	324
Arrenga, Ceylon .. ..	74	Buzzards .. ..	280
Avocet .. ..	357	Buzzard, Desert .. ..	281
		Indian Crested Honey- .. ..	286
Babblers .. ..	39, 41	Chats, (See also Blue-Chats) .. ..	60
Babbler, Ashy-headed .. ..	44	Chat, Southern Indian Pied Bush-	60
Black-fronted .. ..	49	Chloropais, Jerdon's .. ..	52
Brown-capped .. ..	48	Malabar .. ..	51
Ceylon .. ..	43	Coot .. ..	334
Ceylon Rufous .. ..	44	Indian Purple .. ..	333
Ceylon Scimitar .. ..	45	Cormorants .. ..	404, 408
Ceylon Yellow-eyed .. ..	47	Cormorant, Indian Large .. ..	409
Small White-throated .. ..	46	Little .. ..	411
Barbets .. ..	183	Coucals .. ..	229
Barbet, Ceylon Green .. ..	184	Courser .. ..	339
Indian Crimson-breasted .. ..	185	Courser, Indian .. ..	339
Small Ceylon .. ..	186	Crab-Plover .. ..	338
Yellow-fronted .. ..	184	Crake, Banded .. ..	329
Bay-Owls .. ..	245	Eastern Baillon's .. ..	329
Baya .. ..	133	Ruddy .. ..	330
Bazaa .. ..	287	Crows .. ..	33
Baza, Black-crested .. ..	187	Crow, Black .. ..	34
Legge's .. ..	288	Ceylon House .. ..	34
Bee-eaters .. ..	190	Crow-Pheasant, Ceylon .. ..	233
Bee-eater, Blue-tailed .. ..	192	Indian Lesser .. ..	234
Chestnut-headed .. ..	193	Southern .. ..	233
Common Indian .. ..	191	Cuckoos .. ..	218
Birds-of-Prey .. ..	257	Cuckoo, Asiatic .. ..	220
Bittern, Black .. ..	441	Ceylon Banded Bay .. ..	224
Chestnut .. ..	440	Ceylon Drongo .. ..	225
Indian Little Green .. ..	436	Common Hawk .. ..	222
Malay .. ..	438	Emerald .. ..	228
Yellow .. ..	439	Indian .. ..	221
Black-bird, Ceylon .. ..	69	Indian Plaintive .. ..	223
Blue-bird, Fairy .. ..	122	Pied Crested .. ..	226
Blue-Chats .. ..	66	Red-winged Crested .. ..	227
Blue-Chat, Himalayan .. ..	66	Small .. ..	221
Blue-throats .. ..	61	Southern Sirkeer .. ..	232
Blue-throat, Red-spotted .. ..	62	Cuckoo-Shrikes .. ..	92
Boobies .. ..	412	Cuckoo-Shrike, Black-headed .. ..	95
Booby, Australian Masked .. ..	413	Ceylon Large .. ..	96
Bronze-wing Pigeons .. ..	304	Curlew, Eastern .. ..	360
Bulbuls .. ..	53		
Bulbuls, Bush .. ..	50	Darters .. ..	408, 411
Bulbuls, Green .. ..	50	Darter, Indian .. ..	412
Bulbul, Black-capped .. ..	56	Doves .. ..	305
Madras Red-vented .. ..	55	Dove, Ash .. ..	309
Southern Indian Black .. ..	54	Ceylon Spotted .. ..	309
White-browed .. ..	57	Indian Red Turtle .. ..	311
Yellow-browed .. ..	56		
Yellow-eared .. ..	58		

	PAGE		PAGE
Dove, Indian Ring ..	310	Frogmouths ..	204, 214
Indian Rufous Turtle ..	308	Frogmouth, Ceylonese ..	214
Drongos ..	98		
Drongo, Ceylon Black ..	99		
Ceylon Black-crested ..	102	Gadwall ..	454
Ceylon Racket-tailed ..	103	Game-birds ..	313
Indian Gray ..	100	Gannets ..	412
White-bellied ..	102	Gannet, Brown ..	413
White-vented ..	101	Geese ..	444
Ducks ..	444, 449	Goat-suckers ..	210
Duck, Brahminy ..	453	Godwit, Black-tailed ..	362
Comb ..	446	Goose, Gray Lag ..	448
Quacky ..	446	Goshawk, Crested ..	283
Spotted-billed ..	453	Grackles ..	125
		Grackle, Ceylon ..	127
		Southern ..	126
Eagles ..	260	Grebes ..	461
Eagle, Bonelli's ..	262	Grebe, Indian Little ..	461
Booted ..	263	Green Pigeons ..	298
Ceylon Hawk ..	266	Greenshank ..	368
Ceylon Serpent ..	269	Little ..	366
Indian Black ..	265	Gulls ..	382, 383
Large Gray-headed Fishing ..	271	Gull, Brown-headed ..	385
Legge's Hawk ..	267	Dark-backed Herring ..	385
Rufous-bellied Hawk ..	264	Great Black-headed ..	384
White-bellied Sea ..	270		
Eared Owls ..	246	Harriers ..	275
Egret, Cattle ..	434	Harrier, Marsh ..	279
Eastern Large ..	433	Montagu's ..	277
Indian Smaller ..	433	Pale ..	276
Little ..	434	Pied ..	278
		Hawks (see also Goshawk) ..	260, 281
Falcons ..	260, 289	Hawk, Asiatic Sparrow ..	285
Falcon, Eastern Red-footed ..	293	Besra Sparrow ..	284
Indian Peregrine ..	291	Hawk-Eagles ..	261
Siberian Peregrine ..	290	Heron ..	420, 428
Falconet, Black-legged ..	296	Heron, Common Gray ..	431
Finches ..	141	Eastern Purple ..	431
Fish-Eagles ..	268	Giant ..	432
Flamingoes ..	442	Indian Pond ..	436
Flamingo, Common ..	442	Indian Reef ..	435
Flowerpeckers ..	167	Night ..	437
Flowerpecker, Legge's ..	169	Hobby, Indian ..	292
Thick-billed ..	170	Honey-Buzzards ..	285
Tickell's ..	168	Hoopoes ..	202
Flycatchers ..	75	Hoopoe, Ceylon ..	203
Flycatcher, Black-and-Orange ..	82	Hornbills ..	200
Blue-throated ..	78	Hornbill, Ceylonese ..	202
Ceylon Black-naped ..	84	Malabar Pied ..	201
Ceylon White-browed ..	85		
Fantail ..	85	Ibises (see also Shell-Ibis) ..	420, 421
Dusky Blue ..	79	Ibis, Glossy ..	422
Grey-headed ..	82	White ..	421
Indian Brown ..	80	Imperial Pigeons ..	302
Indian Paradise ..	83	Iora, Ceylon ..	50
Indian Red-breasted ..	77		
Leyard's ..	81		
Oberholser's Blue ..	79		
Frigate-birds ..	406	Jacanas ..	342
Frigate-bird, Christmas Island ..	407	Jacana, Phœbeant-tailed ..	343
Iredale's ..	407	Jungle Fowl, Ceylon ..	316

	PAGE		PAGE
Kestrel .. .. .	294	Nuthatches .. .. .	38
Indian .. .. .	295	Nuthatch, Velvet Fronted Blue ..	38
Kingfishers .. .. .	194		
King-fisher, Beavan's .. .. .	196	Open-bill .. .. .	427
Black-capped .. .. .	199	Orioles .. .. .	123
Brown-headed Stork-		Oriole, Black-naped .. .. .	124
billed .. .. .	197	Indian Black-headed .. .. .	124
Ceylon .. .. .	195	Osprey .. .. .	257, 258
Ceylon White-breasted .. .. .	198	Owls .. .. .	242
Indian Pied .. .. .	195	Owl, Brown Fish .. .. .	249
Indian Three-toed .. .. .	197	Brown Wood .. .. .	247
Kites .. .. .	272	Ceylon Bay .. .. .	245
Kite, Black-winged .. .. .	274	Ceylon Brown Hawk .. .. .	255
Brahminy .. .. .	272	Ceylon Scops .. .. .	251
Common Pariah .. .. .	273	Collared Scops .. .. .	252
Knot .. .. .	374	Forest Eagle .. .. .	230
Eastern .. .. .	358	Indian Barn .. .. .	244
Koels .. .. .	230	Short-eared .. .. .	247
Koel, Indian .. .. .	230	Owlets .. .. .	248
		Owlet, Chestnut-backed .. .. .	254
Lapwing, Indian Red-wattled ..	347	Malabar Jungle .. .. .	254
Sociable .. .. .	349	Oyster-Catcher, Siberian .. .. .	355
Yellow-wattled .. .. .	348		
Larks .. .. .	156	Painted Snipe .. .. .	380
Lark, Ashy-crowned Finch .. ..	159	Paroquet, Blue-winged .. .. .	240
Madras Bush .. .. .	158	Large Ceylonese .. .. .	237
Small Nilgiri Sky- .. .. .	157	Layard's .. .. .	239
Loriquet, Ceylon .. .. .	240	Rose-winged .. .. .	238
		Western Blossom-headed .. ..	238
Magpie, Ceylon .. .. .	36	Parrots .. .. .	236
Malkohas .. .. .	229	Partridges .. .. .	313
Malkoha, Red-faced .. .. .	231	Partridge, Southern Gray .. .. .	322
Small Green .. .. .	231	Southern Painted .. .. .	321
Martin, Crag .. .. .	144	Passerine Birds .. .. .	27
Merlin, Red-headed .. .. .	295	Peafowl, Common .. .. .	314
Minivets .. .. .	92	Pelicans .. .. .	404
Minivet, Malabar Small .. .. .	94	Pelican, Spotted-billed .. .. .	405
Orange .. .. .	93	Petrels .. .. .	416
Moorhen, Indian .. .. .	332	Petrel, Cape .. .. .	419
Munias .. .. .	132, 135	Wilson's Stormy .. .. .	417
Munia, Black-headed .. .. .	137	Pigeons .. .. .	297
Ceylon .. .. .	138	Pigeon, Bronze-wing .. .. .	304
Chestnut-bellied .. .. .	136	Cape .. .. .	419
Indian Red .. .. .	136	Ceylon Green Imperial .. ..	303
Spotted .. .. .	140	Ceylon Wood .. .. .	307
White-backed .. .. .	138	Indian Blue Rock .. .. .	306
White-throated .. .. .	139	Jerdon's Imperial .. .. .	302
Mynahs .. .. .	127	Lesser Orange-breasted .. ..	
Mynah, Brahminy .. .. .	129	Green .. .. .	301
Common Ceylon .. .. .	131	Pompadour Green .. .. .	300
White-headed .. .. .	130	Purple Wood .. .. .	308
		Southern Green .. .. .	299
Nightjars .. .. .	204, 210	Pintail .. .. .	456
Nightjar, Ceylon Jungle .. ..	213	Pipits .. .. .	148
Common Indian .. .. .	211	Pipit, Blyth's .. .. .	155
Jerdon's Long-tailed .. ..	212	Indian .. .. .	155
Noddy, Philippine .. .. .	398	Richard's .. .. .	154
Nukhta .. .. .	446	Pittas .. .. .	170
		Pitta, Indian .. .. .	171
		Plovers, (see also. Crab Plover, Stone-	
		Plovers, Swallow-Plovers) 344 345	

	PAGE		PAGE
Plover, Central Asian Lesser Sand-	351	Skua, Antarctic .. ..	401
Eastern Golden .. ..	350	McCormick's .. ..	402
Eastern Gray .. ..	349	Pomatorhine .. ..	402
European Little Ringed ..	353	Skylark, Small Nilgiri ..	157
Indian, Kentish .. ..	354	Snake-Bird .. ..	412
Jerdon's Little Ringed ..	352	Snipes, (see also Painted Snipe) ..	344, 375
Kentish .. ..	353	Snipe, Fantail .. ..	378
Large Sand .. ..	351	Jack .. ..	379
Pochard, Red-crested .. ..	459	Pintail .. ..	378
Pratincoles .. ..	340	Wood .. ..	377
		Sparrow, Indian House ..	142
Quails, (see also Three-toed, or Bustard		Java .. ..	136
Quails) .. ..	313	Yellow-throated .. ..	141
Quail, Black-breasted .. ..	319	Spinetails .. ..	207
Blue-throated .. ..	318	Spinetail, Brown-necked ..	208
Gray .. ..	320	Spoonbills .. ..	420, 422
Jungle Bush .. ..	320	Spoonbill, Indian .. ..	423
		Spur-Fowl, Ceylon .. ..	317
Rails .. ..	326	Starlings .. ..	127
Rail, Blue-breasted Banded ..	328	Starling, Rose-coloured ..	128
Indian Water .. ..	327	Stilt, Black-winged .. ..	356
Redshank, Eastern .. ..	367	Stint, Curlew .. ..	373
Spotted .. ..	366	Little .. ..	371
Robins .. ..	61	Long-toed .. ..	371
Robin, Black-backed Indian ..	63	Temmincks' .. ..	372
Ceylon Magpie .. ..	64	Stone-Curlew, Indian .. ..	336
Rock Pigeons .. ..	305	Stone-Plovers .. ..	336
Rollers .. ..	188	Stone-Plover, Great .. ..	337
Roller, Indian Broad-billed ..	189	Storks .. ..	420, 423
Southern Indian .. ..	189	Stork, Black-necked .. ..	425
Ruff and Reeve .. ..	369	Indian White-necked ..	425
		Painted .. ..	427
Sanderling .. ..	370	Turkestan White .. ..	424
Sandpipers .. ..	344	Sunbirds .. ..	162
Sandpiper, Avocet .. ..	363	Sunbird, Loten's .. ..	164
Common .. ..	363	Purple .. ..	165
Green .. ..	365	Purple-rumped .. ..	166
Marsh .. ..	366	Small .. ..	166
Western Broad-billed .. ..	374	Swallows .. ..	143
Wood .. ..	364	Swallow, Ceylon .. ..	147
Screech-Owls .. ..	243	Eastern .. ..	144
Serpent-Eagles .. ..	268	Nilgiri House .. ..	145
Shag, Indian .. ..	410	Syke's Striated .. ..	146
Shahin .. ..	291	Swallow-Plovers .. ..	340
Shama, Indian .. ..	65	Swallow-Plover, Large Indian ..	341
Shearwater, Flesh-footed ..	419	Small Indian .. ..	342
Green-billed .. ..	418	Swallow-Shrikes .. ..	97
Wedge-tailed .. ..	418	Swallow-Shrike, Ashy .. ..	97
White-fronted .. ..	418	Swifts .. ..	204, 205
Shell-Ibis .. ..	427	Swift, Alpine .. ..	205
Shikra, Ceylon .. ..	282	Common Indian House ..	206
Shoveller .. ..	458	Indian Crested .. ..	209
Shrikes, (see also Cuckoo-Shrikes and		Palm .. ..	207
Swallow-Shrikes) .. ..	86	Swiftlet, Indian Edible-nest ..	208
Shrike, Black-headed Pied ..	90	Little Gray-rumped .. ..	209
Brown .. ..	88		
Ceylon Wood .. ..	91	Tailor-Bird, Indian .. ..	111
Philippine .. ..	89	Teal, Common .. ..	455
Southern Rufous-backed .. ..	87	Cotton .. ..	446
Skuas .. ..	382, 400	Garganey .. ..	457
		Greater Whistling .. ..	452
		Whistling .. ..	451

	PAGE		PAGE
Terns .. .. .	382, 386	Gray-headed .. .. .	152
Tern, Arabian Large Crested .. .. .	393	Indian White .. .. .	149
Black-bellied .. .. .	399	Large Pied .. .. .	150
Black-shafted Little .. .. .	396	Warblers .. .. .	105
Caspian .. .. .	390	Warbler, Ashy Wren .. .. .	119
Common .. .. .	393	Blyth's Reed .. .. .	110
Eastern Rosy .. .. .	394	Booted Tree .. .. .	115
Gull-billed .. .. .	391	Broad-tailed Grass .. .. .	114
Indian River .. .. .	399	Ceylonese .. .. .	110
Indian Sooty .. .. .	397	Ceylon Jungle Wren .. .. .	120
Indian Whiskered .. .. .	389	Ceylon Streaked Fantail .. .. .	112
Nordmann's .. .. .	394	Ceylon Wren .. .. .	121
Panayan .. .. .	397	Franklin's Wren .. .. .	113
Smaller Crested .. .. .	392	Green Willow .. .. .	117
White-shafted Little .. .. .	395	Greenish Willow .. .. .	117
White-winged Black .. .. .	389	Large-billed Willow .. .. .	118
Three-toed Quails .. .. .	324	Mrs. Stevens .. .. .	109
Thrushes .. .. .	59, 67	Pallas' Grasshopper .. .. .	108
Thrush, Ceylon .. .. .	72	Water-Cock .. .. .	332
Eastern Blue Rock- .. .. .	71	Water-Hen, Ceylon White-breasted .. .. .	331
Orange-headed Ground- .. .. .	71	Weaver-Birds .. .. .	132
Pied Ground- .. .. .	70	Weaver-Bird, Indian Striated .. .. .	134
Spotted-winged .. .. .	73	Whimbrel .. .. .	361
Tits .. .. .	36	White-eyes .. .. .	160
Tit, Southern Gray .. .. .	37	White-eye, Large Ceylon .. .. .	161
Trogon .. .. .	216	Small Ceylon .. .. .	161
Trogon, Malabar .. .. .	216	White-throat, Hume's Lesser .. .. .	116
Tropic-Birds .. .. .	414	Indian Lesser .. .. .	116
Tropic-Bird, Red-tailed .. .. .	415	Woodcock .. .. .	375, 376
Short-tailed .. .. .	415	Wood-Owls .. .. .	246
White .. .. .	414	Woodpeckers .. .. .	173
Turnstone .. .. .	346	Woodpecker, Black-backed .. .. .	181
		Ceylon Pigmy .. .. .	178
		Ceylon Rufous .. .. .	178
Vultures .. .. .	259	Fulvous-breasted Pied .. .. .	177
Vulture, Smaller White Scavenger .. .. .	259	Layard's .. .. .	182
		Little Scaly-bellied Green .. .. .	175
Waders .. .. .	335	Red-backed .. .. .	180
Wagtails .. .. .	148	Southern Golden-backed .. .. .	179
Wagtail, Forest .. .. .	153	Southern Yellow-naped .. .. .	176
Gray .. .. .	151	Yellow-fronted Pied .. .. .	176
		Wood Pigeons .. .. .	305

# INDEX OF SCIENTIFIC NAMES

(Synonyms in *Italics*.)

	PAGE		PAGE
<i>Acanthopneuste magnirostris</i> ..	118	<i>alba</i> ( <i>Ciconia</i> ) ..	424
<i>Acanthopneuste nitidus</i> ..	117	<i>alba</i> ( <i>Croceothia</i> ) ..	370
<i>Acanthopneuste nitidus nitidus</i> ..	117	<i>alba</i> ( <i>Herodias</i> ) ..	433
<i>Acanthopneuste nitidus viridanus</i> ..	117	<i>alba</i> ( <i>Motacilla</i> ) ..	149
<i>Acanthopneuste viridanus</i> ..	117	<i>alba asiatica</i> ( <i>Ciconia</i> ) ..	424
<i>Accipiter bestra</i> ..	284	<i>alba dukhunensis</i> ( <i>Motacilla</i> ) ..	149
<i>Accipiter macrourus</i> ..	276	<i>alba javanica</i> ( <i>Tyto</i> ) ..	244
<i>Accipiter nisus nisosimilis</i> ..	285	<i>alba maderaspatensis</i> ( <i>Motacilla</i> ) ..	150
<i>Accipiter virgatus</i> ..	284	<i>alba modesta</i> ( <i>Egretta</i> ) ..	433
<i>Accipiter virgatus bestra</i> ..	284	<i>albifrons saundersi</i> ( <i>Sterna</i> ) ..	396
<i>Accipiter</i> ..	257	<i>albifrons sinensis</i> ( <i>Sterna</i> ) ..	395
<i>accipitrinus</i> ( <i>Asio</i> ) ..	247	<i>albifrontata</i> ( <i>Rhipidura</i> ) ..	85
<i>Acemonorhynchus vincens</i> ..	169	<i>albigularis</i> ( <i>Dumetia</i> ) ..	46
<i>Acridotheres melanosternus</i> ..	131	<i>albigularis</i> ( <i>Malacocercus</i> ) ..	46
<i>Acridotheres tristis melanosternus</i> ..	131	<i>albigularis albigularis</i> ( <i>Dumetia</i> ) ..	46
<i>Acrocephalus dumetorum</i> ..	110	<i>alpinensis</i> ( <i>Podiceps</i> ) ..	461
<i>Acrocephalus stentoreus</i> ..	109	<i>alpinensis</i> ( <i>Tachybaptus</i> ) ..	461
<i>Acrocephalus stentoreus amyae</i> ..	109	<i>Alcedinidae</i> ..	194
<i>acuta</i> ( <i>Anas</i> ) ..	456	<i>Alcedo asiatica</i> ..	196
<i>acuta</i> ( <i>Dafila</i> ) ..	456	<i>Alcedo atthis taprobana</i> ..	195
<i>Aegialitis alexandrina</i> ..	353, 354	<i>Alcedo beavani</i> ..	196
<i>Aegialitis cantiana</i> ..	353, 354	<i>Alcedo bengalensis</i> ..	195
<i>Aegialitis curonica</i> ..	353	<i>Alcedo coerulescens asiatica</i> ..	196
<i>Aegialitis dubia</i> ..	352, 353	<i>Alcedo gurial</i> ..	197
<i>Aegialitis geoffroyi</i> ..	351	<i>Alcedo ispida</i> ..	195
<i>Aegialitis jerdoni</i> ..	352	<i>Alcedo ispida</i> var. <i>taprobana</i> ..	195
<i>Aegialitis mongolica</i> ..	351	<i>Alcedo pileata</i> ..	199
<i>Aegithina tiphia</i> ..	50	<i>Alcedo tridactyla</i> ..	197
<i>Aegithina tiphia zeylonica</i> ..	50	<i>Alcippe nigrifrons</i> ..	49
<i>aegecephala</i> ( <i>Limosa</i> ) ..	362	<i>Alectoropodes</i> ..	313
<i>aenea</i> ( <i>Carphaga</i> ) ..	303	<i>alexandrina</i> ( <i>Aegialitis</i> ) ..	353, 354
<i>aenea pusilla</i> ( <i>Muscadivores</i> ) ..	303	<i>alexandrinus</i> ( <i>Charadrius</i> ) ..	353
<i>aeruginosus</i> ( <i>Circus</i> ) ..	279	<i>alexandrinus alexandrinus</i> ( <i>Charadrius</i> ) ..	353
<i>aeruginosus</i> ( <i>Falco</i> ) ..	279	<i>alexandrinus seebohmi</i> ( <i>Charadrius</i> ) ..	354
<i>aeruginosus aeruginosus</i> ( <i>Circus</i> ) ..	279	<i>Alseonax latirostris</i> ..	80
<i>affinis</i> ( <i>Cypselus</i> ) ..	206	<i>Alseonax latirostris poonenais</i> ..	80
<i>affinis</i> ( <i>Larus</i> ) ..	385	<i>Alseonax mutui</i> ..	81
<i>affinis</i> ( <i>Mitrafra</i> ) ..	158	<i>Alseonax puniceus</i> ..	308
<i>affinis</i> ( <i>Sylvia</i> ) ..	116	<i>Alseonax torringtoniae</i> ..	307
<i>affinis</i> ( <i>Tephrodornis</i> ) ..	91	<i>Alseonax torringtonii</i> ..	307
<i>affinis affinis</i> ( <i>Micropus</i> ) ..	206	<i>althaea</i> ( <i>Sylvia</i> ) ..	116
<i>affinis taimyrensis</i> ( <i>Larus</i> ) ..	385	<i>Amandava amandava</i> ..	136
<i>agile</i> ( <i>Piprosoma</i> ) ..	170	<i>amandava</i> ( <i>Amandava</i> ) ..	136
<i>Alauda australis</i> ..	157	<i>amandava</i> ( <i>Estrela</i> ) ..	136
<i>Alauda grisea</i> ..	159	<i>Anas anser fuscus</i> ..	330
<i>Alauda gulula</i> ..	157	<i>Anas anser fuscus fuscus</i> ..	330
<i>Alauda gulula australis</i> ..	157	<i>Anas anser phoenicurus phoenicurus</i> ..	331
<i>alaudarius</i> ( <i>Alunuculus</i> ) ..	284	<i>Anas anser phoenicurus</i> ..	331
<i>Alaudidae</i> ..	156		



	PAGE		PAGE
<i>amurensis</i> (Cercus) .. ..	293	<i>Ardea garzetta</i> .. ..	434
<i>amurensis</i> (Erythropus) .. ..	293	<i>Ardea goliath</i> .. ..	432
<i>anaetheta</i> (Sterna) .. ..	397	<i>Ardea grayii</i> .. ..	436
<i>anaetheta anaetheta</i> (Sterna) .. ..	397	<i>Ardea gularis</i> .. ..	435
<i>anaetheta</i> (Sterna) .. ..	397	<i>Ardea intermedia</i> .. ..	433
<i>Anas acuta</i> .. ..	456	<i>Ardea javanica</i> .. ..	436
<i>Anas anser</i> .. ..	448	<i>Ardea manillensis</i> .. ..	431
<i>Anas circa</i> .. ..	457	<i>Ardea melanolopha</i> .. ..	438
<i>Anas clypeata</i> .. ..	458	<i>Ardea modesta</i> .. ..	433
<i>Anas coromandeliana</i> .. ..	446	<i>Ardea nycticorax</i> .. ..	437
<i>Anas crecca</i> .. ..	455	<i>Ardea oscitans</i> .. ..	427
<i>Anas ferruginea</i> .. ..	453	<i>Ardea purpurea</i> .. ..	431
<i>Anas fulva</i> .. ..	452	<i>Ardea purpurea manillensis</i> .. ..	431
<i>Anas javanica</i> .. ..	451	<i>Ardea sinensis</i> .. ..	439
<i>Anas poecilorhynca</i> .. ..	453	<i>Ardeae</i> .. ..	428
<i>Anas poecilorhynca poecilorhynca</i> .. ..	453	<i>Ardeidae</i> .. ..	428
<i>Anas querquedula</i> .. ..	457	<i>Ardeiralla cinnamomea</i> .. ..	440
<i>Anas strepera</i> .. ..	454	<i>Ardeiralla flavicollis</i> .. ..	441
<i>Anastomus oscitans</i> .. ..	427	<i>Ardeola grayii</i> .. ..	436
<i>Anatidae</i> .. ..	444	<i>Ardeola grayii</i> .. ..	436
<i>Anatinae</i> .. ..	449	<i>ardeola</i> (Dromas) .. ..	338
<i>andrewsi</i> (Fregata) .. ..	407	<i>Ardetta cinnamomea</i> .. ..	440
<i>anglica</i> (Sterna) .. ..	391	<i>Ardetta sinensis</i> .. ..	439
<i>Anhinga melanogaster</i> .. ..	412	<i>Arenaria interpres interpres</i> .. ..	346
<i>Anisodactylus</i> .. ..	188	<i>arenaria</i> (Calidris) .. ..	370
<i>Anisomyi</i> .. ..	28	<i>ariel</i> (Fregata) .. ..	407
<i>Anous stolidus</i> .. ..	398	<i>ariel iredalei</i> (Fregata) .. ..	407
<i>Anous stolidus pileatus</i> .. ..	398	<i>arquata</i> (Numenius) .. ..	360
<i>Anser anser</i> .. ..	448	<i>arquatus lineatus</i> (Numenius) .. ..	360
<i>Anser cinereus</i> .. ..	448	<i>Arrenga blighi</i> .. ..	74
<i>Anser ferus</i> .. ..	448	<i>Artamidae</i> .. ..	97
<i>Anser melanotos</i> .. ..	446	<i>Artamus fuscus</i> .. ..	97
<i>anser</i> (Anas) .. ..	448	<i>asha</i> (Ardea) .. ..	435
<i>anser</i> (Anser) .. ..	448	<i>asha</i> (Leptorodius) .. ..	435
<i>Anseres</i> .. ..	444	<i>asiatica</i> (Alcedo) .. ..	196
<i>Anserinae</i> .. ..	448	<i>asiatica</i> (Arachnechthra) .. ..	165
<i>antarcticus</i> (Lestris) .. ..	401	<i>asiatica</i> (Certhia) .. ..	165
<i>antarcticus</i> (Stercorarius) .. ..	401	<i>asiatica</i> (Mycteria) .. ..	425
<i>antarcticus antarcticus</i> (Stercorarius) .. ..	401	<i>asiatica</i> (Pardicula) .. ..	320
<i>antarcticus macconnickii</i> (Stercorarius) .. ..	402	<i>asiatica</i> (Perdix) .. ..	320
<i>Anthracoeros coronatus</i> .. ..	201	<i>asiaticus</i> (Caprimulgus) .. ..	211
<i>Anthracoeros coronatus coronatus</i> .. ..	201	<i>asiaticus</i> (Cinnyria) .. ..	165
<i>Anthus richardi</i> .. ..	154	<i>asiaticus</i> (Xenorhynchus) .. ..	425
<i>Anthus richardi richardi</i> .. ..	154	<i>asiaticus asiaticus</i> (Cyrstostomus) .. ..	165
<i>Anthus richardi rufus</i> .. ..	155	<i>asiaticus asiaticus</i> (Xenorhynchus) .. ..	425
<i>Anthus richardi striolatus</i> .. ..	155	<i>Asio accipitrinus</i> .. ..	247
<i>Anthus rufus</i> .. ..	155	<i>Asio flammeus flammeus</i> .. ..	247
<i>Anthus striolatus</i> .. ..	155	<i>Asionidae</i> .. ..	245
<i>antiquorum</i> (Phoenicopterus) .. ..	442	<i>Asioninae</i> .. ..	246
<i>aquaticus indicus</i> (Rallus) .. ..	327	<i>assamica affinis</i> (Miralra) .. ..	158
<i>Aquila fasciata</i> .. ..	262	<i>assimilis</i> (Phodilus) .. ..	245
<i>aquila</i> (Fregata) .. ..	407	<i>assimilis</i> (Photodilus) .. ..	245
<i>Aquila penniger</i> .. ..	265	<i>Astur badius</i> .. ..	282
<i>Arachnechthra asiatica</i> .. ..	165	<i>Astur badius badius</i> .. ..	282
<i>Arachnechthra lotenia</i> .. ..	164	<i>Astur hieneri</i> .. ..	264
<i>Arachnechthra minima</i> .. ..	166	<i>Astur triogatus</i> .. ..	283
<i>Arachnechthra zeylonica</i> .. ..	166	<i>Astur trivirgatus trivirgatus</i> .. ..	283
<i>Ardea asha</i> .. ..	435	<i>ater</i> (Dicurus) .. ..	99
<i>Ardea cinerea</i> .. ..	431	<i>Athene castanopterus</i> .. ..	254
<i>Ardea cinerea cinerea</i> .. ..	431	<i>atra</i> (Buchanga) .. ..	99
<i>Ardea cinnamomea</i> .. ..	440	<i>atra atra</i> (Fulica) .. ..	334
<i>Ardea episcopus</i> .. ..	425	<i>atrata</i> (Pratincola) .. ..	60
<i>Ardea flavicollis</i> .. ..	441	<i>atricapilla</i> (Mimus) .. ..	136

	PAGE		PAGE
<i>atriceps</i> (Parus) ..	37	<i>Brachypternus ceylonus</i> ..	180
<i>atriceps nigrifrons</i> (Rhopocichla) ..	49	<i>Brachypternus erythronotus</i> ..	180
<i>atrifrons</i> (Charadrius) ..	351	<i>Brachypternus puncticollis</i> ..	179
<i>atripennis</i> (Caprimulgus) ..	212	<i>Brachypternus stricklandi</i> ..	182
<i>athys taprobana</i> (Alcedo) ..	195	<i>Brachypteryginae</i> ..	39, 66
<i>aurantius</i> (Brachypternus) ..	179	<i>Brachypteryx palliseri</i> ..	110
<i>aurantius erithronotus</i> (Brachypternus) ..	180	<i>brachyura</i> (Pitta) ..	171
<i>aurantius puncticollis</i> (Brachypternus) ..	179	<i>brachyurus</i> (Corvus) ..	171
<i>aureola compressirostris</i> (Rhipidura) ..	85	<i>brachyurus lanka</i> (Micropternus) ..	178
<i>aurifrons davidsoni</i> (Chloropsis) ..	51	<i>brevicauda</i> (Prinia) ..	119
<i>australis</i> (Alauda) ..	157	<i>brunnea</i> (Larvivora) ..	66
<i>Aviceda jerdoni</i> ceylonensis ..	288	<i>brunneicephalus</i> (Larus) ..	385
<i>avocetta</i> (Recurvirostra) ..	357	<i>brunneicephalus</i> (Larus) ..	385
<i>avocetta avocetta</i> (Recurvirostra) ..	357	<i>Bubo nipalensis</i> ..	250
<i>azurea</i> (Hypothymis) ..	84	<i>Buboninae</i> ..	248
<i>azurea ceylonensis</i> (Hypothymis) ..	84	<i>Bubulus coromandus</i> ..	434
<i>badia cuprea</i> (Ducula) ..	302	<i>Bulbulcus ibis coromandus</i> ..	434
<i>badius</i> (Astur) ..	282	<i>Bucco flavifrons</i> ..	184
<i>badius</i> (Falco) ..	282	<i>Bucco indicus</i> ..	185
<i>badius assimilis</i> (Photodilus) ..	245	<i>Bucco rubricapillus</i> ..	186
<i>badius badius</i> (Astur) ..	282	<i>Bucco zeylanicus</i> ..	184
<i>bailloni</i> (Porzana) ..	329	<i>Buceros coronatus</i> ..	201
<i>bakkamoena</i> (Otus) ..	252	<i>Buceros gingalensis</i> ..	202
<i>bakkamoena</i> (Scops) ..	252	<i>Bucerotes</i> ..	200
<i>bakkamoena bakkamoena</i> (Otus) ..	252	<i>Bucerotidae</i> ..	200
<i>bakkomuna</i> (Scops) ..	252	<i>Buchanga atra</i> ..	99
<i>battasiensis</i> (Cypselus) ..	270	<i>Buchanga leucopygialis</i> ..	101
<i>battasiensis</i> (Tachornis) ..	207	<i>Buchanga longicaudata</i> ..	100
<i>battasiensis battasiensis</i> (Tachornis) ..	207	<i>Burhinidae</i> ..	336
<i>Batrachostomus moniliger</i> ..	214	<i>Burhinus oedicnemus indicus</i> ..	336
<i>baza</i> (Ploceus) ..	133	<i>Butalis mutui</i> ..	81
<i>Baza ceylonensis</i> ..	288	<i>Buteo buteo rufiventer</i> ..	281
<i>Baza lophotes</i> ..	287	<i>Buteo desertorum</i> ..	281
<i>beavani</i> (Alcedo) ..	196	<i>Buteo plumipes</i> ..	281
<i>belgica</i> (Limosa) ..	362	<i>Buteo rufiventer</i> ..	281
<i>bengalensis</i> (Alcedo) ..	195	<i>buteo rufiventer</i> (Buteo) ..	281
<i>bengalensis</i> (Centropus) ..	234	<i>Butorides javanica</i> ..	436
<i>bengalensis</i> (Cuculus) ..	234	<i>Butorides striatus javanicus</i> ..	436
<i>bengalensis</i> (Sterna) ..	392	<i>Cacomantis merulinus passerinus</i> ..	223
<i>bengalensis bengalensis</i> (Centropus) ..	234	<i>Cacomantis passerinus</i> ..	223
<i>bengalensis bengalensis</i> (Sterna) ..	392	<i>Calidris arenaria</i> ..	370
<i>benghalensis</i> (Rallus) ..	381	<i>Calidris canutus canutus</i> ..	374
<i>benghalensis benghalensis</i> (Rostratula) ..	381	<i>Calidris tenuirostris</i> ..	358
<i>benghalensis indica</i> (Coracias) ..	189	<i>calidris</i> (Totanus) ..	367
<i>bergii</i> (Sterna) ..	393	<i>calidus</i> (Falco) ..	290
<i>bergii velox</i> (Sterna) ..	393	<i>caligata</i> (Hypolaïs) ..	115
<i>besra</i> (Accipiter) ..	284	<i>calthropae</i> (Palaeornis) ..	239
<i>bicalcarata</i> (Galloperdix) ..	317	<i>calthropae</i> (Psittacula) ..	239
<i>bicalcaratus</i> (Perdix) ..	317	<i>Campophaga sylvestris</i> ..	95
<i>bicincta</i> (Osmotreron) ..	301	<i>Cancroma coromanda</i> ..	434
<i>bicolor</i> (Pratincola) ..	60	<i>candidus</i> (Himantopus) ..	356
<i>bisincta</i> (Vinago) ..	301	<i>caniceps</i> (Lanius) ..	87
<i>bisincta bisincta</i> (Treron) ..	301	<i>canorus</i> (Cuculus) ..	220
<i>blighi</i> (Arrenga) ..	74	<i>canorus telephonus</i> (Cuculus) ..	220
<i>blighi</i> (Myiophonus) ..	74	<i>cantiana</i> (Aegialitis) ..	353, 354
<i>borealis</i> (Motacilla) ..	152	<i>canutus canutus</i> (Calidris) ..	374
<i>Brachypodinae</i> ..	39	<i>canutus</i> (Tringa) ..	374
<i>Brachypternopus puncticollis</i> ..	179	<i>capensis</i> (Daption) ..	419
<i>Brachypternus auranus</i> ..	179	<i>capensis</i> (Procellaria) ..	419
<i>Brachypternus auranus erithronotus</i> ..	180	<i>capensis</i> (Rhyngochus) ..	381
<i>Brachypternus auranus puncticollis</i> ..	179	<i>capensis</i> (Rostratula) ..	381

	PAGE		PAGE
capensis guriat (Rhamphaleyon)	197	Chalcophaps indica	304
Capitonidae	183	Charadriidae	344
caprata atrata (Saxicola)	60	Charadriinae	345
Caprimulgi	210	<i>Charadrius alexandrinus</i>	353
Caprimulgidae	210	<i>Charadrius alexandrinus alexandrinus</i>	353
Caprimulgus asiaticus	211	<i>Charadrius alexandrinus seebohmii</i>	354
Caprimulgus atripennis	212	<i>Charadrius atrifrons</i>	351
Caprimulgus indicus	213	<i>Charadrius coromandelicus</i>	359
Caprimulgus kelaarti	213	<i>Charadrius curonicus</i>	353
Caprimulgus macrurus	212	<i>Charadrius dubius curonicus</i>	353
<i>Carbo javanicus</i>	411	<i>Charadrius dubius jerdoni</i>	352
<i>carbo</i> (Phalacrocorax)	409	<i>Charadrius fulvus</i>	350
<i>carbo sinensis</i> (Phalacrocorax)	09	<i>Charadrius gregarius</i>	349
Carinatae	23	<i>Charadrius himantopus</i>	356
<i>carneipes</i> (Puffinus)	419	<i>Charadrius hypomelanus</i>	349
<i>carneipes carneipes</i> (Puffinus)	419	<i>Charadrius leschenaulti</i>	351
<i>Carpophaga aenea</i>	303	<i>Charadrius malabaricus</i>	348
<i>Carpophaga pusilla</i>	303	<i>Charadrius mongolus atrifrons</i>	351
<i>Casarca ferruginea</i>	453	<i>Chauleasmus streperus</i>	454
<i>Casarca rutila</i>	453	<i>cheela</i> (Spilornis)	269
<i>casarca</i> (Tadorna)	453	<i>cheela spilogaster</i> (Spilornis)	269
<i>caspia</i> (Hydroprogne)	390	<i>Chettusia gregaria</i>	349
<i>caspia</i> (Sterna)	390	<i>chinensis</i> (Coturnix)	318
<i>caspia caspia</i> (Hydroprogne)	390	<i>chinensis</i> (Excalfactoria)	318
<i>castanonotum</i> (Glaucidium)	254	<i>chinensis</i> (Tetrao)	318
<i>castanopterus</i> (Athene)	254	<i>chinensis ceylonensis</i> (Streptopelia)	309
<i>Centropus bengalensis</i>	234	<i>chinensis chinensis</i> (Excalfactoria)	318
<i>Centropus bengalensis bengalensis</i>	234	<i>chiquera chiquera</i> (Falco)	295
<i>Centropus chlororhynchus</i>	233	<i>chirurgus</i> (Hydrophasianus)	343
<i>Centropus rufipennis</i>	233	<i>chirurgus</i> (Tringa)	343
<i>Centropus sinensis</i>	233	<i>Chlidonias leucopareia indica</i>	389
<i>Centropus sinensis parroti</i>	233	<i>Chlidonias leucopareia</i>	389
<i>Cerchneis amurensis</i>	293	<i>chlorogaster</i> (Picus)	176
<i>Cerchneis tinnunculus</i>	294	<i>chlorogaster</i> (Crocopus)	299
<i>Certhia asiatica</i>	165	<i>chlorogaster</i> (Gecinus)	176
<i>Certhia erythrorhynchus</i>	168	<i>chlorogaster</i> (Vinago)	299
<i>Certhia lotenia</i>	164	<i>chlorolophus chlorogaster</i> (Picus)	176
<i>Certhia zeylonica</i>	166	<i>Chloropsis aurifrons davidsoni</i>	51
<i>certhiola</i> (Locustella)	108	<i>Chloropsis jerdoni</i>	52
<i>certhiola</i> (Motacilla)	108	<i>Chloropsis malabarica</i>	51
<i>Ceryle leucomelanura</i>	195	<i>chloropus</i> (Gallinula)	332
<i>Ceryle rudis</i>	195	<i>chloropus parvifrons</i> (Gallinula)	332
<i>Ceryle rudis leucomelanura</i>	195	<i>chlororhynchus</i> (Centropus)	233
<i>Ceryle varia</i>	195	<i>chlororhynchus</i> (Puffinus)	418
<i>ceylonensis</i> (Falco)	266	<i>Chrysocolaptes festivus</i>	181
<i>ceylonensis</i> (Spizaetus)	266	<i>Chrysocolaptes guttaeristatus strick-</i>	
<i>ceylonensis</i> (Baza)	288	<i>landi</i>	182
<i>ceylonensis</i> (Copsychus)	64	<i>Chrysocolaptes stricklandi</i>	182
<i>ceylonensis</i> (Culicicapa)	82	<i>Chrysophlegma xanthoderus</i>	176
<i>ceylonensis</i> (Dissemurus)	103	<i>Ciconia alba</i>	424
<i>ceylonensis</i> (Hypothymis)	84	<i>Ciconia alba asiatica</i>	424
<i>ceylonensis</i> (Platyrrhynchus)	82	<i>Ciconia ciconia asiatica</i>	424
<i>ceylonensis</i> (Turtur)	309	<i>Ciconia javanica</i>	426
<i>ceylonensis</i> (Upupa)	203	<i>ciconia asiatica</i> (Ciconia)	424
<i>ceylonensis</i> (Zosterops)	161	<i>Ciconiae</i>	423
<i>ceylonensis ceylonensis</i> (Culicicapa)	82	<i>Ciconiidae</i>	423
<i>ceylonus</i> (Brachypterus)	180	<i>cinereus</i> (Circus)	277
<i>Ceyx tridactyla</i>	197	<i>cinerea</i> (Ardea)	431
<i>Ceyx tridactylus tridactylus</i>	197	<i>cinerea</i> (Fulica)	332
<i>Chaetura gigantea</i>	208	<i>cinerea</i> (Gallicrex)	332
<i>Chaetura indica</i>	208	<i>cinerea</i> (Scolopax)	363
<i>Chaeturinae</i>	207	<i>cinerea</i> (Terekia)	363
<i>Chalcococcyx maculatus</i>	228	<i>cinerea cinerea</i> (Ardea)	431

	PAGE		PAGE
<i>cinerea melanope</i> (Motacilla) ..	151	<i>compressirostris</i> (Leucocerca) ..	85
<i>cinereifrons</i> (Crateropus) ..	44	<i>concolor</i> (Ptyonoprogne) ..	144
<i>cinereifrons</i> (Garulax) ..	44	<i>Copsychus ceylonensis</i> ..	64
<i>cinereifrons</i> (Turdoides) ..	44	<i>Copsychus saularis</i> ..	64
<i>cinereus</i> (Anser) ..	448	<i>Copsychus saularis ceylonensis</i> ..	64
<i>cinnamomea</i> (Ardea) ..	440	Coraciidae ..	188
<i>cinnamomea</i> (Ardeiralla) ..	440	Coraciæ ..	188
<i>cinnamomea</i> (Ardeita) ..	440	<i>Coracias benghalensis indica</i> ..	189
<i>cinnamomeus</i> (Ixobrychus) ..	440	<i>Coracias indica</i> ..	189
<i>Cinnyris asiaticus</i> ..	166	<i>Coracias orientalis</i> ..	189
<i>Cinnyris lotenius</i> ..	164	<i>Coracias puella</i> ..	122
<i>Cinnyris minimo</i> ..	166	<i>coromandeliana</i> (Anas) ..	446
<i>Cinnyris minimus</i> ..	166	<i>coromandelianus</i> (Nettapius) ..	446
<i>Cinnyris zeylonicus</i> ..	166	<i>coromandelianus</i> (Nettopus) ..	446
<i>circia</i> (Anas) ..	457	<i>coromandelica</i> (Coturnix) ..	319
<i>circia</i> (Querquedula) ..	457	<i>coromandelicus</i> (Charadrius) ..	339
<i>Circus aeruginosus</i> ..	279	<i>coromandelicus</i> (Cursorius) ..	339
<i>Circus aeruginosus aeruginosus</i> ..	279	<i>coromandelicus</i> (Tetrao) ..	319
<i>Circus cinereus</i> ..	277	<i>coromandus</i> (Bubulcus) ..	434
<i>Circus macrourus</i> ..	276	<i>coromandus</i> (Canceroma) ..	434
<i>Circus macurus</i> ..	276	<i>coromandus</i> (Clamator) ..	227
<i>Circus melanoleucus</i> ..	278	<i>coromandus</i> (Coccytes) ..	227
<i>Circus pygargus</i> ..	277	<i>coromandus</i> (Cuculus) ..	227
<i>cirrhatus</i> (Spizaetus) ..	266	<i>coronata</i> (Hemiprocne) ..	209
<i>cirrhatus ceylonensis</i> (Spizaetus) ..	266	<i>coronata</i> (Hirundo) ..	209
<i>Cissa ornata</i> ..	36	<i>coronata</i> (Macropteryx) ..	209
<i>Cisticola cursitans</i> ..	112	<i>coronata</i> (Pitta) ..	171
<i>Cisticola juncidis omalura</i> ..	112	<i>coronatus</i> (Anthracoceros) ..	201
<i>Cisticola omalura</i> ..	112	<i>coronatus</i> (Buceros) ..	201
<i>citrina</i> (Geocichla) ..	71	<i>coronatus</i> (Dendrochelidon) ..	209
<i>citrina citrina</i> (Geocichla) ..	71	<i>coronatus coronatus</i> (Anthracoceros) ..	201
<i>citrinus</i> (Turdus) ..	71	<i>Corone macrorhynchus</i> ..	34
<i>Cittocinclu macrura</i> ..	65	<i>Corone splendens</i> ..	34
<i>Clamator coromandus</i> ..	227	<i>coronoides culminatus</i> (Corvus) ..	34
<i>Clamator jacobinus</i> ..	226	Corvidæ ..	33
<i>clypeata</i> (Anas) ..	458	<i>Corvus brachyurus</i> ..	171
<i>clypeata</i> (Spatula) ..	458	<i>Corvus coronoides culminatus</i> ..	34
<i>Coccygæ</i> ..	218	<i>Corvus culminatus</i> ..	34
<i>Coccytes coromandus</i> ..	227	<i>Corvus macrorhynchus</i> ..	34
<i>Coccytes jacobinus</i> ..	226	<i>Corvus splendens</i> ..	34
<i>coelestis</i> (Gallinago) ..	378	<i>Corvus splendens protegatus</i> ..	34
<i>coerulescens asiatica</i> (Alcedo) ..	196	<i>Corydalla richardi</i> ..	154
<i>coerulescens coerulescens</i> (Dicrurus) ..	102	<i>Corydalla rufula</i> ..	155
<i>coerulescens leucopygialis</i> (Dicrurus) ..	101	<i>Corydalla striolata</i> ..	155
<i>coeruleus</i> (Elanus) ..	274	<i>Coryllis indicus</i> ..	240
<i>coeruleus</i> (Falco) ..	274	<i>Coturnix chinensis</i> ..	318
<i>coeruleus coeruleus</i> (Elanus) ..	274	<i>Coturnix coromandelica</i> ..	319
<i>Collocalia francaica</i> ..	208	<i>Coturnix coturnix coturnix</i> ..	320
<i>Collocalia francaica francaica</i> ..	209	<i>Crateropodidae</i> ..	39
<i>Collocalia unicolor</i> ..	208	<i>Crateropodinae</i> ..	39
<i>Collocalia unicolor unicolor</i> ..	208	<i>Crateropus cinereifrons</i> ..	44
<i>Columba cuprea</i> ..	302	<i>Crateropus rufescens</i> ..	44
<i>Columba indica</i> ..	304	<i>Crateropus striatus</i> ..	43
<i>Columba intermedia</i> ..	306	<i>crecca</i> (Anas) ..	455
<i>Columba livia intermedia</i> ..	306	<i>crecca</i> (Nettium) ..	455
<i>Columba meena</i> ..	308	<i>crecca crecca</i> (Nettion) ..	455
<i>Columba pompadora</i> ..	300	<i>Criniger ictericus</i> ..	56
<i>Columba risoria decacoto</i> ..	310	<i>cristatus</i> (Lanius) ..	88
<i>Columba tranquebarica</i> ..	311	<i>cristatus</i> (Pavo) ..	314
Columbæ ..	297	<i>cristatus</i> (Pernis) ..	286
Columbidae ..	297	<i>cristatus cristatus</i> (Lanius) ..	88
Columbinae ..	305	<i>cristatus lucionensis</i> (Lanius) ..	89
<i>columboides</i> (Psittacula) ..	249	<i>cristatus ruficollis</i> (Pernis) ..	286

	PAGE		PAGE
<i>Crocethia alba</i> .. .. .	370	<i>Dendrochelidon coronatus</i> .. .. .	209
<i>Crocopus chlorogaster</i> .. .. .	299	<i>Dendrocopos macei</i> .. .. .	177
<i>Crocopus phoenicopterus chlorogaster</i> .. .. .	299	<i>Dendrocoryna fulva</i> .. .. .	452
Cuculidae .. .. .	218	<i>Dendrocoryna javanica</i> .. .. .	451
Cuculinae .. .. .	219	<i>Dendronothus indicus</i> .. .. .	153
<i>Cuculus canorus</i> .. .. .	220	<i>Dendrophila frontalis</i> .. .. .	38
<i>Cuculus canorus telephonus</i> .. .. .	220	<i>desertorum (Buteo)</i> .. .. .	281
<i>Cuculus coromandus</i> .. .. .	227	<i>Diacromyodi</i> .. .. .	28
<i>Cuculus jacobinus</i> .. .. .	226	Dicaeidae .. .. .	167
<i>Cuculus micropterus</i> .. .. .	221	<i>Dicaeum erythrorhynchus</i> .. .. .	168
<i>Cuculus micropterus micropterus</i> .. .. .	221	<i>Dicaeum minimum</i> .. .. .	168
<i>Cuculus passerinus</i> .. .. .	223	Dicruridae .. .. .	98
<i>Cuculus poliocephalus</i> .. .. .	221	<i>Dicrurus ater</i> .. .. .	99
<i>Cuculus poliocephalus poliocephalus</i> .. .. .	221	<i>Dicrurus coerulescens coerulescens</i> .. .. .	102
<i>Cuculus pyrrhocephalus</i> .. .. .	231	<i>Dicrurus coerulescens leucopygius</i> .. .. .	101
<i>Cuculus scolopaceus</i> .. .. .	230	<i>Dicrurus leucophaeus minimus</i> .. .. .	100
<i>Cuculus sonnerati</i> .. .. .	224	<i>Dicrurus leucopygius</i> .. .. .	101
<i>Cuculus telephonus</i> .. .. .	220	<i>Dicrurus longicaudatus</i> .. .. .	100
<i>Cuculus varius</i> .. .. .	222	<i>Dicrurus lophorhinus</i> .. .. .	102
<i>Culicicapa ceylonensis</i> .. .. .	82	<i>Dicrurus macrocerus minor</i> .. .. .	99
<i>Culicicapa ceylonensis ceylonensis</i> .. .. .	82	<i>Dicrurus minor</i> .. .. .	99
<i>culminatus (Corvus)</i> .. .. .	34	<i>diffusus (Oriolus)</i> .. .. .	124
<i>Cuncuma leucogaster</i> .. .. .	270	<i>Dissemurulus lophorhinus</i> .. .. .	102
<i>cuprea (Columba)</i> .. .. .	302	<i>Dissemurus ceylonensis</i> .. .. .	103
<i>cuprea (Ducula)</i> .. .. .	302	<i>Dissemurus lophorhinus</i> .. .. .	102
<i>curonica (Aegialitis)</i> .. .. .	353	<i>Dissemurus paradiseus</i> .. .. .	103
<i>curonica (Charadrius)</i> .. .. .	353	<i>Dissemurus paradiseus ceylonensis</i> .. .. .	103
<i>curruca affinis (Sylvia)</i> .. .. .	116	<i>Dissoura episcopa episcopa</i> .. .. .	425
<i>curritans (Cisticola)</i> .. .. .	112	<i>Dissura episcopus</i> .. .. .	425
<i>Cursoriinae</i> .. .. .	339	<i>domesticus (Passer)</i> .. .. .	142
<i>Cursorius coromandelicus</i> .. .. .	339	<i>domesticus indicus (Passer)</i> .. .. .	142
<i>Cyanecula suecica</i> .. .. .	62	<i>dominicus fulvus (Pluvialis)</i> .. .. .	350
<i>Cyanecula suecica pallidogularis</i> .. .. .	62	<i>dougalli (Sterna)</i> .. .. .	394
<i>cyanocephala cyanocephala (Psittacula)</i> .. .. .	239	<i>dougalli korustes (Sterna)</i> .. .. .	394
<i>cyanocephalus (Palaeornis)</i> .. .. .	239	Dromadidae .. .. .	338
<i>cyanocephalus (Psittacus)</i> .. .. .	239	<i>Dromas ardeola</i> .. .. .	338
<i>Cyanops flavifrons</i> .. .. .	184	<i>Drymocataphus fuscicapillus</i> .. .. .	48
<i>cyanops (Sula)</i> .. .. .	413	<i>Drymoica insularis</i> .. .. .	121
<i>Cyanosylvia suecica pallidogularis</i> .. .. .	62	<i>Drymoica jerdoni</i> .. .. .	120, 121
<i>cyanus (Monticola)</i> .. .. .	71	<i>Drymoica valida</i> .. .. .	120
<i>cyanus (Petrophila)</i> .. .. .	71	<i>Dryobates macei macei</i> .. .. .	177
<i>Cyornis rubeculoides</i> .. .. .	78	<i>dabia (Aegialitis)</i> .. .. .	352
<i>Cyornis rubeculoides rubeculoides</i> .. .. .	78	<i>dubius curonica (Charadrius)</i> .. .. .	353
<i>Cyornis tickelli</i> .. .. .	79	<i>dubius jerdoni (Charadrius)</i> .. .. .	352
<i>Cyornis tickelliae messaea</i> .. .. .	79	<i>Ducula badia cuprea</i> .. .. .	302
<i>Cypselus affinis</i> .. .. .	206	<i>Ducula cuprea</i> .. .. .	302
<i>Cypselus bataviensis</i> .. .. .	207	Duculinae .. .. .	302
<i>Cypselus melba</i> .. .. .	205	<i>dukunensis (Motacilla)</i> .. .. .	149
<i>Cyrtostomus asiaticus asiaticus</i> .. .. .	165	<i>Dumetia albigularis</i> .. .. .	46
<i>Cyrtostomus lotenius</i> .. .. .	164	<i>Dumetia albigularis albigularis</i> .. .. .	46
<i>Cyrtostomus minimus</i> .. .. .	166	<i>dumetorum (Acrocephalus)</i> .. .. .	110
<i>Cyrtostomus zeylonicus</i> .. .. .	166	<i>Dupetor flavicollis</i> .. .. .	441
		<i>Dupetor flavicollis flavicollis</i> .. .. .	441
<i>dactylatra personata (Parasula)</i> .. .. .	413		
<i>Dafila acuta</i> .. .. .	456	<i>egregia (Zosterops)</i> .. .. .	161
<i>Daption capensis</i> .. .. .	419	<i>Egretta alba modesta</i> .. .. .	433
<i>dauma imbricata (Oreocincla)</i> .. .. .	72	<i>Egretta garzetta garzetta</i> .. .. .	434
<i>daurica erythropygia (Hirundo)</i> .. .. .	146	<i>Egretta intermedia intermedia</i> .. .. .	433
<i>daurica hypertyra (Hirundo)</i> .. .. .	147	<i>Elaphrornis palliseri</i> .. .. .	110
<i>decaocto decaocto (Streptopelia)</i> .. .. .	310	<i>Elanus coerules</i> .. .. .	274
<i>Delichon urbica</i> .. .. .	144	<i>Elanus coerules coerules</i> .. .. .	274
<i>Demigretta sacra asha</i> .. .. .	435	<i>episcopa episcopa (Dissoura)</i> .. .. .	425

	PAGE		PAGE
<i>episcopus</i> (Ardea) .. ..	425	<i>Falco tinnunculus</i> .. ..	294
<i>episcopus</i> (Disura) .. ..	425	<i>Falco tinnunculus interstinctus</i> ..	294
<i>epops</i> ceylonensis (Upupa) ..	203	<i>Falco tinnunculus tinnunculus</i> ..	294
<i>erithronotus</i> (Picus) .. ..	180	<i>Falco trivirgatus</i> .. ..	283
<i>Erolia ferruginea</i> .. ..	373	<i>Falco vespertinus amurensis</i> ..	293
<i>Erolia minuta</i> .. ..	371	Falconidae .. ..	260
<i>Erolia subminuta</i> .. ..	371	Falconinae .. ..	261
<i>Erolia temminckii</i> .. ..	372	<i>fasciata</i> (Aquila) .. ..	262
<i>Erythra phoenictura</i> .. ..	331	<i>fasciatus</i> (Harpactes) .. ..	216
<i>erythrocephalus</i> (Merops) ..	193	<i>fasciatus</i> (Hieraeus) .. ..	262
<i>erythrocephalus erythrocephalus</i> (Melittophagus) .. ..	193	<i>fasciatus</i> (Nisaeus) .. ..	262
<i>erythronotus</i> (Brachypternus) ..	180	<i>fasciatus</i> (Pyrotragon) .. ..	216
<i>erythronotus</i> (Lanius) .. ..	87	<i>fasciatus</i> (Trogon) .. ..	216
<i>Erythropus amurensis</i> .. ..	293	<i>ferrago</i> (Turtur) .. ..	308
<i>erythropus</i> (Scolopax) .. ..	366	<i>ferruginea</i> (Anas) .. ..	453
<i>erythropus</i> (Tringa) .. ..	366	<i>ferruginea</i> (Casarca) .. ..	453
<i>erythropygia</i> (Hirundo) .. ..	146	<i>ferruginea</i> (Erolia) .. ..	373
<i>erythrorhynchus</i> (Cerythia) ..	168	<i>ferruginea</i> (Tringa) .. ..	373
<i>erythrorhynchus</i> (Dicaeum) ..	168	<i>ferus</i> (Anser) .. ..	448
<i>Esacus recurvirostris</i> .. ..	337	<i>festivus</i> (Chrysocolaptes) ..	181
<i>Estrela amandava</i> .. ..	136	<i>festivus</i> (Picus) .. ..	181
<i>Eudynamis honorata</i> .. ..	230	<i>flammea</i> (Muscicapa) .. ..	93
<i>Eudynamis scolopaceus scolopaceus</i>	230	<i>flammea</i> (Strix) .. ..	244, 247
<i>Eulabes ptilogenys</i> .. ..	127	<i>flammeus</i> (Pericrocotus) .. ..	93
<i>Eulabes religiosa</i> .. ..	126	<i>flammeus flammus</i> (Asio) .. ..	247
<i>Eulabetidae</i> .. ..	125	<i>flava thunbergi</i> (Motacilla) ..	152
<i>eupatria</i> (Palaeornis) .. ..	237	<i>flaviceps</i> (Ploceus) .. ..	134
<i>eupatria</i> (Psittacus) .. ..	237	<i>flavicollis</i> (Ardea) .. ..	441
<i>eupatria eupatria</i> (Psittacula) ..	237	<i>flavicollis</i> (Ardeiralla) .. ..	441
<i>Eurystomus orientalis</i> .. ..	189	<i>flavicollis</i> (Dupetor) .. ..	441
<i>Eurystomus orientalis orientalis</i> ..	189	<i>flavicollis</i> (Gymnorhis) .. ..	141
<i>euryzonoides</i> (Rallina) .. ..	329	<i>flavicollis</i> (Passer) .. ..	141
<i>Excalfactoria chinensis</i> .. ..	318	<i>flavicollis flavicollis</i> (Dupetor) ..	441
<i>Excalfactoria chinensis chinensis</i>	318	<i>flavifrons</i> (Bucco) .. ..	184
		<i>flavifrons</i> (Cyanops) .. ..	184
<i>falcinella falcinella</i> (Limicola) ..	374	<i>flavifrons</i> (Megalaema) .. ..	184
<i>falcinella sibirica</i> (Limicola) ..	374	<i>flavifrons</i> (Phaethon) .. ..	414
<i>falcinellus</i> (Plegadis) .. ..	422	<i>fluvialis</i> (Podiceps) .. ..	461
<i>falcinellus</i> (Scolopax) .. ..	374	<i>fluvialis</i> (Sterna) .. ..	393
<i>falcinellus</i> (Tantalus) .. ..	422	<i>francica</i> (Collocalia) .. ..	208
<i>falcinellus falcinellus</i> (Plegadis) ..	422	<i>francica francica</i> (Collocalia) ..	209
<i>Falco aeruginosus</i> .. ..	279	<i>francolinus pictus</i> .. ..	321
<i>Falco badius</i> .. ..	282	<i>francolinus pictus pictus</i> .. ..	321
<i>Falco calidus</i> .. ..	290	<i>francolinus pondicerianus</i> .. ..	322
<i>Falco ceylonensis</i> .. ..	266	<i>francolinus pondicerianus pondi-</i> <i>cerianus</i> .. ..	322
<i>Falco chiquera chiquera</i> .. ..	295	<i>Franklinia gracilis</i> .. ..	113
<i>Falco coerules</i> .. ..	274	<i>Fregata andrewsi</i> .. ..	407
<i>Falco haliaetus</i> .. ..	258	<i>Fregata aquila</i> .. ..	407
<i>Falco ichthyaeus</i> .. ..	271	<i>Fregata ariel</i> .. ..	407
<i>Falco indus</i> .. ..	272	<i>Fregata ariel iredalei</i> .. ..	407
<i>Falco leucogaster</i> .. ..	270	<i>Fregata minor</i> .. ..	407
<i>Falco leuphotes</i> .. ..	287	<i>Fregata minor alabrensis</i> .. ..	406
<i>Falco melanoleucus</i> .. ..	278	<i>Fregatidae</i> .. ..	406
<i>Falco pennatus</i> .. ..	263	<i>Fringilla xanthosterna</i> .. ..	141
<i>Falco peregrinator</i> .. ..	291	<i>fringillaris</i> (Microhierax) ..	296
<i>Falco peregrinus</i> .. ..	290	<i>Fringillidae</i> .. ..	141
<i>Falco peregrinus calidus</i> .. ..	290	<i>Fringillinae</i> .. ..	141
<i>Falco peregrinus peregrinator</i> ..	291	<i>frontalis</i> (Dendrophila) .. ..	38
<i>Falco pygargus</i> .. ..	277	<i>frontalis</i> (Sitta) .. ..	38
<i>Falco severus</i> .. ..	292	<i>frontalis frontalis</i> (Sitta) ..	38
<i>Falco severus indicus</i> .. ..	292	<i>Fulica atra atra</i> .. ..	334
		<i>Fulica cinerea</i> .. ..	332

	PAGE		PAGE
<i>Fulcariae</i> .. .. .	326	<i>Glareola orientalis</i> .. .. .	341
<i>fulcata</i> ( <i>Motacilla</i> ) .. .. .	63	<i>glareola</i> ( <i>Totanus</i> ) .. .. .	364
<i>fulcata</i> ( <i>Thamnobia</i> ) .. .. .	63	<i>glareola</i> ( <i>Tringa</i> ) .. .. .	364
<i>fulcata</i> <i>fulcata</i> ( <i>Saxicoloides</i> ) .. .. .	63	<i>Glareolidae</i> .. .. .	339
<i>fuliginosa</i> ( <i>Sterna</i> ) .. .. .	397	<i>Glareolinae</i> .. .. .	340
<i>Fuligulinae</i> .. .. .	459	<i>Glaucidium castanonotum</i> .. .. .	254
<i>fulva</i> ( <i>Anas</i> ) .. .. .	452	<i>Glaucidium malabaricum</i> .. .. .	254
<i>fulva</i> ( <i>Dendrocygna</i> ) .. .. .	452	<i>Glaucidium radiatum</i> .. .. .	254
<i>fulvus</i> ( <i>Charadrius</i> ) .. .. .	330	<i>Glaucidium radiatum casteno-</i> .. .. .	
<i>fusca</i> ( <i>Porzana</i> ) .. .. .	330	<i>pteron</i> .. .. .	254
<i>fusca</i> <i>infusca</i> ( <i>Sterna</i> ) .. .. .	397	<i>Glaucidium radiatum malabar-</i> .. .. .	
<i>fuscapillum</i> ( <i>Pellorneum</i> ) .. .. .	48	<i>icum</i> .. .. .	254
<i>fuscapillum dubaulti</i> ( <i>Pellorneum</i> ) .. .. .	48	<i>Glaucomyias sordida</i> .. .. .	79
<i>fuscapillus</i> ( <i>Drymotaphus</i> ) .. .. .	48	<i>glottis</i> ( <i>Totanus</i> ) .. .. .	368
<i>fuscolilis</i> ( <i>Phalacrocorax</i> ) .. .. .	410	<i>goliath</i> ( <i>Ardea</i> ) .. .. .	432
<i>fuscus</i> ( <i>Amaurornis</i> ) .. .. .	330	<i>Gorsachius melanolophus</i> .. .. .	438
<i>fuscus</i> ( <i>Artamus</i> ) .. .. .	97	<i>govinda</i> ( <i>Milvus</i> ) .. .. .	273
<i>fuscus</i> ( <i>Rallus</i> ) .. .. .	330	<i>gracilis</i> ( <i>Franklinia</i> ) .. .. .	113
<i>fuscus</i> ( <i>Totanus</i> ) .. .. .	366	<i>gracilis</i> ( <i>Prinia</i> ) .. .. .	113
<i>fuscus fuscus</i> ( <i>Amaurornis</i> ) .. .. .	330	<i>Grallae</i> .. .. .	326
<i>fuscus taimyrensis</i> ( <i>Larus</i> ) .. .. .	385	<i>Graucala pitogenys</i> .. .. .	127
		<i>Graucala religiosa</i> .. .. .	126
		<i>Graucalus layardi</i> .. .. .	96
		<i>Graucalus macei</i> .. .. .	96
		<i>Graucalus macei layardi</i> .. .. .	96
<i>Gallicrex cinerea</i> .. .. .	332	<i>grayi</i> ( <i>Ardeola</i> ) .. .. .	436
<i>Gallinae</i> .. .. .	313	<i>grayii</i> ( <i>Ardea</i> ) .. .. .	436
<i>Gallinago coelestis</i> .. .. .	378	<i>grayii</i> ( <i>Ardeola</i> ) .. .. .	436
<i>Gallinago gallinago gallinago</i> .. .. .	378	<i>gregaria</i> ( <i>Chettusia</i> ) .. .. .	349
<i>Gallinago gallinula</i> .. .. .	379	<i>gregarius</i> ( <i>Charadrius</i> ) .. .. .	349
<i>Gallinago nemoricola</i> .. .. .	377	<i>grisea</i> ( <i>Alauda</i> ) .. .. .	159
<i>Gallinago scolopacina</i> .. .. .	378	<i>grisea</i> ( <i>Pyrrhuloxia</i> ) .. .. .	159
<i>Gallinago stenura</i> .. .. .	378	<i>grisea</i> ( <i>Pyrrhuloxia</i> ) .. .. .	159
<i>gallinago</i> ( <i>Scolopax</i> ) .. .. .	378	<i>griseus</i> ( <i>Nycticorax</i> ) .. .. .	437
<i>gallinago gallinago</i> ( <i>Gallinago</i> ) .. .. .	378	<i>griseus striatus</i> ( <i>Turdoides</i> ) .. .. .	43
<i>Gallinula chloropus</i> .. .. .	332	<i>gularis</i> ( <i>Ardea</i> ) .. .. .	435
<i>Gallinula chloropus parvifrons</i> .. .. .	332	<i>gularis</i> ( <i>Micropternus</i> ) .. .. .	178
<i>Gallinula parvifrons</i> .. .. .	332	<i>gulgula</i> ( <i>Alauda</i> ) .. .. .	157
<i>Gallinula poliocephala</i> .. .. .	333	<i>gulgula australis</i> ( <i>Alauda</i> ) .. .. .	157
<i>gallinula</i> ( <i>Gallinago</i> ) .. .. .	379	<i>gurali</i> ( <i>Alcedo</i> ) .. .. .	197
<i>Galloperdix bicalcarata</i> .. .. .	317	<i>gurali</i> ( <i>Pelargopsis</i> ) .. .. .	197
<i>Gallus lafayettii</i> .. .. .	316	<i>guttacristatus stricklandi</i> ( <i>Chrys-</i> .. .. .	
<i>gambesia</i> ( <i>Hypsipetes</i> ) .. .. .	54	<i>colaptes</i> ) .. .. .	182
<i>Garrulus cinereifrons</i> .. .. .	44	<i>gutturalis</i> ( <i>Hirundo</i> ) .. .. .	144
<i>garzetta</i> ( <i>Ardea</i> ) .. .. .	434	<i>gymnophthalmus</i> ( <i>lyngipicus</i> ) .. .. .	178
<i>garzetta</i> ( <i>Herodias</i> ) .. .. .	434	<i>gymnophthalmus</i> ( <i>Picus</i> ) .. .. .	178
<i>garzetta garzetta</i> ( <i>Egretta</i> ) .. .. .	434	<i>Gymnorhis flavicollis</i> .. .. .	141
<i>Gaviae</i> .. .. .	382	<i>Gymnorhis xanthosterna xantho-</i> .. .. .	
<i>Gecinys chlorogaster</i> .. .. .	176	<i>sterna</i> .. .. .	141
<i>Gecinys striolatus</i> .. .. .	175	<i>Gypidae</i> .. .. .	259
<i>generosa</i> ( <i>Halcyon</i> ) .. .. .	198		
<i>Geocichla citrina</i> .. .. .	71	<i>haemacephala</i> ( <i>Xantholaema</i> ) .. .. .	185
<i>Geocichla citrina citrina</i> .. .. .	71	<i>haemacephala indica</i> ( <i>Xantholaema</i> ) .. .. .	185
<i>Geocichla wardi</i> .. .. .	70	<i>haematocephala</i> ( <i>Xantholaema</i> ) .. .. .	185
<i>geoffroyi</i> ( <i>Aeg. alitis</i> ) .. .. .	351	<i>Haematopodinae</i> .. .. .	355
<i>gigantea</i> ( <i>Chaetura</i> ) .. .. .	208	<i>Haematopus longipes</i> .. .. .	355
<i>gigantea indica</i> ( <i>Hirundinapus</i> ) .. .. .	208	<i>Haematopus ostralegus</i> .. .. .	355
<i>gingalensis</i> ( <i>Buceros</i> ) .. .. .	202	<i>Haematopus ostralegus longipes</i> .. .. .	355
<i>gingalensis</i> ( <i>Lophoceros</i> ) .. .. .	202	<i>Haematornis luteolus</i> .. .. .	57
<i>gingalensis</i> ( <i>Tockus</i> ) .. .. .	202	<i>Haematornis spilogaster</i> .. .. .	269
<i>ginginianus</i> ( <i>Neophron</i> ) .. .. .	259		
<i>ginginianus</i> ( <i>Vultur</i> ) .. .. .	259		
<i>giz</i> ( <i>Scops</i> ) .. .. .	251		
<i>Glareola lactea</i> .. .. .	342		
<i>Glareola maldivarum</i> .. .. .	341		

	PAGE		PAGE
<i>haemorrhous</i> ( <i>Molpastes</i> ) ..	55	<i>Hydroprogne caspia</i> ..	390
<i>haemorrhous</i> ( <i>Muscicapa</i> ) ..	55	<i>Hydroprogne caspia caspia</i> ..	390
<i>haemorrhous</i> ( <i>Pycnanotus</i> ) ..	55	<i>hyperythra</i> ( <i>Hirundo</i> ) ..	147
<i>haemorrhous haemorrhous</i> ( <i>Mol-</i>		<i>hyperythra</i> ( <i>Muscicapa</i> ) ..	77
<i>pastes</i> ) ..	55	<i>hyperythra</i> ( <i>Siphia</i> ) ..	77
<i>Halcyon generosa</i> ..	198	<i>Hypolais caligata</i> ..	115
<i>Halcyon pileata</i> ..	199	<i>Hypolais scita</i> ..	115
<i>Halcyon smyrnensis</i> ..	198	<i>hypoleuca</i> ( <i>Tringa</i> ) ..	363
<i>Halcyon smyrnensis generosa</i> ..	198	<i>hypoleucos</i> ( <i>Tringa</i> ) ..	363
<i>Halcyones</i> ..	194	<i>hypoleucos</i> ( <i>Totanus</i> ) ..	363
<i>Haliaetus leucogaster</i> ..	270	<i>hypoleucos</i> ( <i>Tringoides</i> ) ..	363
<i>haliaetus</i> ( <i>Falco</i> ) ..	258	<i>hypomelanus</i> ( <i>Charadrius</i> ) ..	349
<i>haliaetus</i> ( <i>Pandion</i> ) ..	258	<i>Hypotaenidia striata</i> ..	328
<i>haliaetus haliaetus</i> ( <i>Pandion</i> ) ..	258	<i>Hypotaenidia striata striata</i> ..	328
<i>Haliastur indus</i> ..	272	<i>Hypothymis azurea</i> ..	84
<i>Haliastur indus indus</i> ..	272	<i>Hypothymis azurea ceylonensis</i> ..	84
<i>Harporctes fasciatus</i> ..	216	<i>Hypothymis ceylonensis</i> ..	84
<i>helvetica</i> ( <i>Squatrola</i> ) ..	349	<i>Hypsipetes ganessa</i> ..	54
<i>Hemipodii</i> ..	324		
<i>Hemiprocne coronata</i> ..	209		
<i>Hemiprocneinae</i> ..	209		
<i>Hemipus picatus</i> ..	90	<i>Ibididae</i> ..	421
<i>Hemipus picatus picatus</i> ..	90	<i>Ibis melanocephala</i> ..	421
<i>Herodias alba</i> ..	433	<i>ibis coromandus</i> ( <i>Bubulcus</i> ) ..	434
<i>Herodias garzetta</i> ..	434	<i>ichthyaetus</i> ( <i>Falco</i> ) ..	271
<i>Herodias intermedia</i> ..	433	<i>ichthyaetus</i> ( <i>Larus</i> ) ..	384
<i>Herodiones</i> ..	420	<i>ichthyaetus</i> ( <i>Polioaetus</i> ) ..	271
<i>Heterornis senex</i> ..	130	<i>icterica</i> ( <i>Iole</i> ) ..	56
<i>Hieraetus fasciatus</i> ..	262	<i>ictericus</i> ( <i>Criniger</i> ) ..	56
<i>Hieraetus pennatus</i> ..	263	<i>Ictinaetus malayensis</i> ..	265
<i>Hierococcyx varius</i> ..	222	<i>Ictinaetus malayensis perniger</i> ..	265
<i>Himantopus candidus</i> ..	356	<i>imbricata</i> ( <i>Oreocincta</i> ) ..	72
<i>Himantopus himantopus himanto-</i>		<i>imbricata</i> ( <i>Zoothera</i> ) ..	72
<i>pus</i> ..	356	<i>indica</i> ( <i>Chaetura</i> ) ..	208
<i>himantopus</i> ( <i>Charadrius</i> ) ..	356	<i>indica</i> ( <i>Chalcophaps</i> ) ..	304
<i>himantopus himantopus</i> ( <i>Himan-</i>		<i>indica</i> ( <i>Columba</i> ) ..	304
<i>topus</i> ) ..	356	<i>indica</i> ( <i>Coracias</i> ) ..	189
<i>hirsuta</i> ( <i>Ninox</i> ) ..	255	<i>indica</i> ( <i>Motacilla</i> ) ..	153
<i>Hirundinapus gigantea indica</i> ..	208	<i>indica</i> ( <i>Tringa</i> ) ..	347
<i>Hirundinidae</i> ..	143	<i>indica</i> ( <i>Upupa</i> ) ..	203
<i>Hirundo coronata</i> ..	209	<i>indica</i> ( <i>Virelva</i> ) ..	389
<i>Hirundo daurica erythropygia</i> ..	146	<i>indicas</i> ( <i>Bucco</i> ) ..	185
<i>Hirundo daurica hyperythra</i> ..	147	<i>indicus</i> ( <i>Caprimulgus</i> ) ..	213
<i>Hirundo erythropygia</i> ..	146	<i>indicus</i> ( <i>Coryllis</i> ) ..	240
<i>Hirundo gutturalis</i> ..	144	<i>indicus</i> ( <i>Dendronothus</i> ) ..	153
<i>Hirundo hyperythra</i> ..	147	<i>indicus</i> ( <i>Limonidromus</i> ) ..	153
<i>Hirundo javanica</i> ..	145	<i>indicus</i> ( <i>Lobivanellus</i> ) ..	347
<i>Hirundo melba</i> ..	205	<i>indicus</i> ( <i>Loriculus</i> ) ..	240
<i>Hirundo rustica</i> ..	144	<i>indicus</i> ( <i>Oedicephalus</i> ) ..	336
<i>Hirundo rustica gutturalis</i> ..	144	<i>indicus</i> ( <i>Oriolus</i> ) ..	124
<i>Hirundo rustica javanica</i> ..	145	<i>indicus</i> ( <i>Passer</i> ) ..	142
<i>Hirundo unicolor</i> ..	208	<i>indicus</i> ( <i>Phaethon</i> ) ..	415
<i>hirundo</i> ( <i>Sterna</i> ) ..	393	<i>indicus</i> ( <i>Psittacus</i> ) ..	240
<i>hirundo hirundo</i> ( <i>Sterna</i> ) ..	393	<i>indicus</i> ( <i>Rallus</i> ) ..	327
<i>hodgsoni</i> ( <i>Prinia</i> ) ..	113	<i>indicus</i> ( <i>Sarcogrammus</i> ) ..	347
<i>honoluluensis</i> ( <i>Eudynamis</i> ) ..	230	<i>indicus indicus</i> ( <i>Lobivanellus</i> ) ..	347
<i>horsfieldi melanurus</i> ( <i>Pomatorhinus</i> ) ..	45	<i>indicus indicus</i> ( <i>Oriolus</i> ) ..	124
<i>Huhua nepalensis</i> ..	250	<i>indranee</i> ( <i>Strix</i> ) ..	247
<i>Huhua nipalensis</i> ..	250	<i>indranee indranee</i> ( <i>Strix</i> ) ..	247
<i>hybrida</i> ( <i>Hydrochelidon</i> ) ..	389	<i>indranee</i> ( <i>Syrnium</i> ) ..	247
<i>Hydrochelidon hybrida</i> ..	389	<i>indus</i> ( <i>Falco</i> ) ..	272
<i>Hydrochelidon leucophaea</i> ..	389	<i>indus</i> ( <i>Haliastur</i> ) ..	272
<i>Hydrophasianus chirurgus</i> ..	345	<i>indus indus</i> ( <i>Haliastur</i> ) ..	272
		<i>infuscata</i> ( <i>Sterna</i> ) ..	397



	PAGE		PAGE
<i>inornata jerdoni</i> (Prinia) .. ..	121	Laniidae .. ..	86
<i>insularis</i> (Drymoica) .. ..	121	<i>Lanius caniceps</i> .. ..	87
<i>intermedia</i> (Ardea) .. ..	433	<i>Lanius cristatus</i> .. ..	88
<i>intermedia</i> (Columba) .. ..	306	<i>Lanius cristatus cristatus</i> .. ..	88
<i>intermedia</i> (Herodias) .. ..	433	<i>Lanius cristatus lucionensis</i> .. ..	89
<i>intermedia intermedia</i> (Egretta) .. ..	433	<i>Lanius erythronotus</i> .. ..	87
<i>interpres</i> (Streptopelia) .. ..	346	<i>Lanius lucionensis</i> .. ..	89
<i>interpres</i> (Tringa) .. ..	346	<i>Lanius schach caniceps</i> .. ..	87
<i>interpres interpres</i> (Arenaria) .. ..	346	Laridae .. ..	383
<i>iole icterica</i> .. ..	56	Larinae .. ..	383
<i>lora tiphia</i> .. ..	50	<i>Larus affinis</i> .. ..	385
<i>Irena puella</i> .. ..	122	<i>Larus affinis tomyrensis</i> .. ..	385
<i>Irena puella puella</i> .. ..	122	<i>Larus brunneiceps</i> .. ..	385
Irenidae .. ..	122	<i>Larus brunneiceps</i> .. ..	385
<i>ispida</i> (Alcedo) .. ..	195	<i>Larus fuscus taimyrensis</i> .. ..	385
<i>ispida</i> var. <i>taprobana</i> (Alcedo) .. ..	195	<i>Larus ichthyæus</i> .. ..	384
<i>Ixobrychus cinnamomeus</i> .. ..	440	Larvivora brunnea .. ..	66
<i>Ixobrychus sinensis</i> .. ..	439	<i>latirostris</i> (Alseonax) .. ..	80
<i>Ixos luteolus</i> .. ..	57	<i>latirostris</i> (Muscicapa) .. ..	80
<i>lyngipicus gymnocephalus</i> .. ..	178	<i>latirostris poonensis</i> (Alseonax) .. ..	80
		<i>layardi</i> (Graucalus) .. ..	96
Jacaniidae .. ..	342	Leptoptilus javanicus .. ..	426
<i>jacobinus</i> (Clamator) .. ..	226	Leptorodius asha .. ..	435
<i>jacobinus</i> (Coccyzus) .. ..	226	Lepturus (Phaethon) .. ..	414
<i>jacobinus</i> (Cuculus) .. ..	226	Lepturus lepturus (Phaethon) .. ..	414
<i>javanica</i> (Anas) .. ..	451	leschenaulti (Charadrius) .. ..	351
<i>javanica</i> (Ardea) .. ..	436	leschenaulti (Taccocua) .. ..	232
<i>javanica</i> (Butorides) .. ..	436	<i>Lestris antareticus</i> .. ..	401
<i>javanica</i> (Ciconia) .. ..	426	<i>Lestris pomarinus</i> .. ..	402
<i>javanica</i> (Dendrocygna) .. ..	451	leucocephalus (Pseudotantalus) .. ..	427
<i>javanica</i> (Hirundo) .. ..	145	leucocephalus (Tantalus) .. ..	427
<i>javanica</i> (Sturnia) .. ..	244	leucocephalus leucocephalus (Pseudo-	
<i>javanica</i> legrei (Turnix) .. ..	324	tantalus) .. ..	427
<i>javanicus</i> (Carbo) .. ..	411	<i>Leucocerca compressirostris</i> .. ..	85
<i>javanicus</i> (Leptoptilus) .. ..	426	leucogaster (Cuncuma) .. ..	270
<i>javanicus</i> (Merops) .. ..	192	leucogaster (Falco) .. ..	270
<i>javanicus</i> (Phalacrocorax) .. ..	411	leucogaster (Haliaeetus) .. ..	270
<i>jerdoni</i> (Aegialitis) .. ..	352	leucogaster (Sula) .. ..	413
<i>jerdoni</i> (Chloropsis) .. ..	52	leucogaster plotus (Sula) .. ..	413
<i>jerdoni</i> (Drymoica) .. ..	120, 121	leucogastra (Sula) .. ..	413
<i>jerdoni</i> (Phyllornis) .. ..	52	leucomelanura (Ceryle) .. ..	195
<i>jerdoni</i> (Prinia) .. ..	121	leucomelas (Puffinus) .. ..	418
<i>jerdoni</i> (Zeylonensis) (Aviceda) .. ..	288	leucopareia indica (Chlidonias) .. ..	389
<i>juncidis</i> (Omalura) (Cisticola) .. ..	112	leucophaeus minimus (Dicrurus) .. ..	100
		leucoptera (Chlidonias) .. ..	389
Kelaarta penicillata .. ..	58	leucoptera (Hydrochelidon) .. ..	389
<i>kelaarti</i> (Caprimulgus) .. ..	213	leucoptera (Sterna) .. ..	389
<i>kelaarti</i> (Mania) .. ..	138	leucopygialis (Buchanga) .. ..	101
<i>kelaarti</i> (Spizaetus) .. ..	267	leucopygialis (Dicrurus) .. ..	101
<i>kelaarti</i> (Uroloncha) .. ..	138	leucorodia (Platalea) .. ..	423
<i>Ketupa zeylonensis</i> .. ..	249	leucorodia major (Platalea) .. ..	423
<i>Ketupa zeylonensis zeylonensis</i> .. ..	249	leuphotes (Falco) .. ..	287
<i>kieneri</i> (Aster) .. ..	264	leuphotes leuphotes (Lophastur) .. ..	287
<i>kieneri</i> (Lophotriorchis) .. ..	264	limicola falcinella falcinella .. ..	374
<i>kinisii</i> (Turdus) .. ..	69	limicola falcinella sibirica .. ..	374
<i>kinisii</i> (Merula) .. ..	69	limicola platyrhynca .. ..	374
<i>Kittocincla macroura indica</i> .. ..	65	limicolae .. ..	335
<i>korustes</i> (Sterna) .. ..	394	limonidromus indicus .. ..	153
		<i>limosa</i> (Aegoccephala) .. ..	362
<i>lacten</i> (Glaucala) .. ..	342	<i>limosa</i> belgica .. ..	362
<i>lafayettii</i> (Gallus) .. ..	316	<i>limosa</i> limosa .. ..	362
<i>Lalage eykesii</i> .. ..	95	<i>limosa</i> (Scelopax) .. ..	362
		<i>limosa</i> limosa (Limosa) .. ..	362
		lineatus (Numenius) .. ..	360

	PAGE		PAGE
<i>Liopicus mahrattensis</i> ..	176	<i>major mahratterum</i> (Parus) ..	37
<i>Liotrichinae</i> ..	50	<i>malabarica</i> ( <i>Chloropsis</i> ) ..	51
<i>livia intermedia</i> (Columba) ..	306	<i>malabarica</i> ( <i>Lobipluvia</i> ) ..	348
<i>Lobipluvia malabarica</i> ..	348	<i>malabarica</i> ( <i>Loxia</i> ) ..	139
<i>Lobivanellus indicus</i> ..	347	<i>malabarica</i> ( <i>Munia</i> ) ..	139
<i>Lobivanellus indicus indicus</i> ..	347	<i>malabarica</i> ( <i>Uroloncha</i> ) ..	139
<i>Locustella certhiola</i> ..	108	<i>malabaricum</i> ( <i>Glaucidium</i> ) ..	254
<i>longicaudata</i> ( <i>Buchanga</i> ) ..	100	<i>malabaricus</i> ( <i>Charadrius</i> ) ..	348
<i>longicaudatus</i> ( <i>Dicrurus</i> ) ..	100	<i>malabaricus</i> ( <i>Parus</i> ) ..	94
<i>longipennis</i> ( <i>Sterna</i> ) ..	395	<i>malabaricus</i> ( <i>Phyllornis</i> ) ..	51
<i>Lophastur leuphotes leuphotes</i> ..	287	<i>malabaricus</i> ( <i>Sarciphorus</i> ) ..	348
<i>Lophoceros gingalensis</i> ..	202	<i>malacca</i> ( <i>Loxia</i> ) ..	137
<i>lophorhinus</i> ( <i>Dicrurus</i> ) ..	102	<i>malacca</i> ( <i>Munia</i> ) ..	137
<i>lophorhinus</i> ( <i>Dissemurulus</i> ) ..	102	<i>Malacocercus albigularis</i> ..	46
<i>lophorhinus</i> ( <i>Dissemurus</i> ) ..	102	<i>Malacocercus rufescens</i> ..	44
<i>Lophospizias trio rgatus</i> ..	283	<i>Malacocercus striatus</i> ..	43
<i>lophotes</i> ( <i>Baza</i> ) ..	287	<i>malayensis</i> ( <i>Ictinaetus</i> ) ..	265
<i>Lophotrichorhis kieneri</i> ..	264	<i>malayensis</i> ( <i>Neopus</i> ) ..	265
<i>Loriculus indicus</i> ..	240	<i>malayensis</i> <i>perniger</i> ( <i>Ictinaetus</i> ) ..	265
<i>lotenia</i> ( <i>Arachnechthra</i> ) ..	164	<i>maldivarum</i> ( <i>Clareola</i> ) ..	341
<i>lotenia</i> ( <i>Certhia</i> ) ..	164	<i>manillensis</i> ( <i>Ardea</i> ) ..	431
<i>lotenius</i> ( <i>Cinnyris</i> ) ..	164	<i>manyar</i> ( <i>Ploceus</i> ) ..	134
<i>lotenius</i> ( <i>Cyrtostomus</i> ) ..	164	<i>manyar flaviceps</i> ( <i>Ploceus</i> ) ..	134
<i>Loxia malabarica</i> ..	139	<i>media</i> ( <i>Sterna</i> ) ..	392
<i>Loxia malacca</i> ..	137	<i>neena</i> (Columba) ..	308
<i>Loxia philippina</i> ..	133	<i>Megalaema flavifrons</i> ..	184
<i>Loxia punctulata</i> ..	140	<i>Megalaema zeylanica</i> ..	184
<i>Loxia striata</i> ..	138	<i>Megalornes</i> ..	326
<i>lucionensis</i> ( <i>Lanius</i> ) ..	89	<i>melanictera</i> ( <i>Muscicapa</i> ) ..	56
<i>lugubris</i> ( <i>Surniculus</i> ) ..	225	<i>melanictera</i> ( <i>Rubigula</i> ) ..	56
<i>lugubris stewarti</i> ( <i>Surniculus</i> ) ..	225	<i>melanicterus</i> ( <i>Pycnonotus</i> ) ..	56
<i>luteolus</i> ( <i>Haematornis</i> ) ..	57	<i>melanocephala</i> ( <i>Ibis</i> ) ..	421
<i>luteolus</i> ( <i>Ixos</i> ) ..	57	<i>melanocephalus</i> ( <i>Oriolus</i> ) ..	124
<i>luteolus</i> ( <i>Pycnonotus</i> ) ..	57	<i>melanocephalus</i> ( <i>Tantalus</i> ) ..	421
<i>luteolus</i> ( <i>Sturnus</i> ) ..	124	<i>melanocephalus melanocephalus</i> ..	
<i>luteolus luteolus</i> ( <i>Oriolus</i> ) ..	124	( <i>Threskiornis</i> ) ..	421
<i>Lymnocyrtus minima</i> ..	379	<i>melanogaster</i> ( <i>Anhinga</i> ) ..	412
		<i>melanogaster</i> ( <i>Plotus</i> ) ..	412
<i>maccormickii</i> ( <i>Stercorarius</i> ) ..	402	<i>melanogaster</i> ( <i>Sterna</i> ) ..	399
<i>macei</i> ( <i>Dendrocopos</i> ) ..	177	<i>melanoleucus</i> ( <i>Circus</i> ) ..	278
<i>macei</i> ( <i>Graucalus</i> ) ..	96	<i>melanoleucus</i> ( <i>Falco</i> ) ..	278
<i>macei layardi</i> ( <i>Graucalus</i> ) ..	96	<i>melanolopha</i> ( <i>Ardea</i> ) ..	438
<i>macei macei</i> ( <i>Dryobates</i> ) ..	177	<i>melanolophus</i> ( <i>Gorsachius</i> ) ..	438
<i>Machetes pugnax</i> ..	369	<i>melanotus</i> ( <i>Sarcidiornis</i> ) ..	446
<i>macrocerus minor</i> ( <i>Dicrurus</i> ) ..	99	<i>melanope</i> ( <i>Motacilla</i> ) ..	151
<i>Macrochires</i> ..	204	<i>melanosternus</i> ( <i>Acridotheres</i> ) ..	131
<i>Macropteryx coronata</i> ..	209	<i>melanota</i> ( <i>Sarcidiornis</i> ) ..	446
<i>macrorhynchus</i> ( <i>Corone</i> ) ..	34	<i>melanotus</i> ( <i>Anser</i> ) ..	446
<i>macrorhynchus</i> ( <i>Corvus</i> ) ..	34	<i>melanurus</i> ( <i>Pomatorhinus</i> ) ..	45
<i>macroura indica</i> ( <i>Kittocinclia</i> ) ..	65	<i>melba</i> ( <i>Cypselus</i> ) ..	205
<i>macrourus</i> ( <i>Accipiter</i> ) ..	276	<i>melba</i> ( <i>Hirundo</i> ) ..	205
<i>macrourus</i> ( <i>Circus</i> ) ..	276	<i>melba melba</i> ( <i>Micropus</i> ) ..	205
<i>macrura</i> ( <i>Cittocinclia</i> ) ..	65	<i>Melittophagus erythrocephalus</i> ..	
<i>macrurus</i> ( <i>Caprimulgus</i> ) ..	212	<i>erythrocephalus</i> ..	193
<i>macurus</i> ( <i>Circus</i> ) ..	276	<i>Melittophagus swinhoei</i> ..	193
<i>maculatus</i> ( <i>Chalcococcyx</i> ) ..	228	<i>Meropes</i> ..	190
<i>maderaspensis</i> ( <i>Motacilla</i> ) ..	150	<i>Meropidae</i> ..	190
<i>magnirostris</i> ( <i>Acanthopneuste</i> ) ..	118	<i>Merops erythrocephalus</i> ..	193
<i>magnirostris</i> ( <i>Phylloscopus</i> ) ..	118	<i>Merops javanicus</i> ..	192
<i>mahrattensis</i> ( <i>Liopicus</i> ) ..	176	<i>Merops orientalis</i> ..	191
<i>mahrattensis</i> ( <i>Picus</i> ) ..	176	<i>Merops orientalis orientalis</i> ..	191
<i>major</i> ( <i>Platalea</i> ) ..	423	<i>Merops philippinus</i> ..	192
		<i>Merops superciliosus javanicus</i> ..	192

# INDEX OF SCIENTIFIC NAMES

485

	PAGE		PAGE
<i>Merops swinhoi</i> .. .. .	193	<i>Munia oryzivora</i> .. .. .	136
<i>Merops viridis</i> .. .. .	191	<i>Munia punctulata</i> .. .. .	140
<i>Merula kinnisii</i> .. .. .	69	<i>Munia rubroniger</i> .. .. .	136
<i>merula kinnisii</i> (Turdus) .. .. .	69	<i>Munia striata</i> .. .. .	138
<i>merulinus passerinus</i> (Cacomantis) .. .. .	223	<i>Muscadivores aeneus pusilla</i> .. .. .	303
<i>Microhierax tringillaris</i> .. .. .	296	<i>Muscicapa flammia</i> .. .. .	93
<i>Micropodas</i> .. .. .	204	<i>Muscicapa haemorrhous</i> .. .. .	55
<i>Micropodidae</i> .. .. .	204	<i>Muscicapa hyperythra</i> .. .. .	77
<i>Micropodinae</i> .. .. .	205	<i>Muscicapa latirostris</i> .. .. .	80
<i>Micropternus brachyurus lanka</i> .. .. .	178	<i>Muscicapa melanictica</i> .. .. .	36
<i>Micropternus gularis</i> .. .. .	178	<i>Muscicapa paradisi</i> .. .. .	83
<i>micropterus</i> (Cuculus) .. .. .	221	<i>Muscicapa picata</i> .. .. .	90
<i>micropterus micropterus</i> (Cuculus) .. .. .	221	<i>Muscicapidae</i> .. .. .	75
<i>Micropus affinis affinis</i> .. .. .	206	<i>muttui</i> (Alseonax) .. .. .	81
<i>Micropus melba melba</i> .. .. .	205	<i>muttui</i> (Batatis) .. .. .	81
<i>Microscelus psaroides ganeesa</i> .. .. .	54	<i>Mycteria asiatica</i> .. .. .	425
<i>migrans govinda</i> (Milvus) .. .. .	273	<i>Myiophonus blighi</i> .. .. .	74
<i>Milvus govinda</i> .. .. .	273		
<i>Milvus migrans govinda</i> .. .. .	273		
<i>minima</i> (Arachnechthra) .. .. .	166	<i>nasalis</i> (Pycnorhis) .. .. .	47
<i>minima</i> (Cinnyris) .. .. .	166	<i>nebularia</i> (Scolopax) .. .. .	368
<i>minima</i> (Lymnocyrtus) .. .. .	379	<i>nebularia</i> (Tringa) .. .. .	368
<i>minima</i> (Scolopax) .. .. .	379	<i>Nectariniidae</i> .. .. .	162
<i>minimum</i> (Dicaeum) .. .. .	168	<i>Nectariniinae</i> .. .. .	162
<i>minimus</i> (Cinnyris) .. .. .	166	<i>nemorica</i> (Gallinago) .. .. .	377
<i>minimus</i> (Cyrtoctomus) .. .. .	166	<i>Neognathae</i> .. .. .	23
<i>minor</i> (Dicrurus) .. .. .	99	<i>Neophron ginginianus</i> .. .. .	259
<i>minor</i> (Fregata) .. .. .	407	<i>Neophron percnopterus ginginianus</i> .. .. .	259
<i>minor alabrensis</i> (Fregata) .. .. .	406	<i>us</i> .. .. .	259
<i>minuta</i> (Erolia) .. .. .	371	<i>Neopus malayensis</i> .. .. .	265
<i>minuta</i> (Tringa) .. .. .	371	<i>nepalensis</i> (Huhua) .. .. .	250
<i>minuta</i> (Scope) .. .. .	251	<i>Netta rufina</i> .. .. .	459
<i>Mirafra affinis</i> .. .. .	158	<i>Nettapus coromandelianus</i> .. .. .	446
<i>Mirafra assamica affinis</i> .. .. .	158	<i>Nettion crecca crecca</i> .. .. .	455
<i>modesta</i> (Ardea) .. .. .	433	<i>Nettion crecca</i> .. .. .	455
<i>Molpastes haemorrhous</i> .. .. .	55	<i>Nettion coromandelianus</i> .. .. .	446
<i>Molpastes haemorrhous haemorrhous</i> .. .. .	55	<i>Nettion coromandelianus</i> .. .. .	49
<i>mongolica</i> (Aegialitis) .. .. .	351	<i>nigripennis</i> (Alcippe) .. .. .	203
<i>mongolus atritrans</i> (Charadrius) .. .. .	351	<i>nigripennis</i> (Upupa) .. .. .	82
<i>moniliger</i> (Batrachostomus) .. .. .	214	<i>nilotica</i> (Sterna) .. .. .	391
<i>Monticola cyanus</i> .. .. .	71	<i>nilotica nilotica</i> (Sterna) .. .. .	391
<i>Monticola solitaria pandoo</i> .. .. .	71	<i>Ninox hirsuta</i> .. .. .	255
<i>Motacilla alba</i> .. .. .	149	<i>Ninox scutulata</i> .. .. .	255
<i>Motacilla alba dukhunensis</i> .. .. .	149	<i>Ninox scutulata hirsuta</i> .. .. .	255
<i>Motacilla alba maderaspatisensis</i> .. .. .	150	<i>nipalensis</i> (Bubo) .. .. .	250
<i>Motacilla borealis</i> .. .. .	152	<i>nipalensis</i> (Huhua) .. .. .	250
<i>Motacilla certhiola</i> .. .. .	108	<i>nipalensis kelaarti</i> (Spizaetus) .. .. .	267
<i>Motacilla cinerea melanope</i> .. .. .	151	<i>Nisaeus fasciatus</i> .. .. .	262
<i>Motacilla dukhunensis</i> .. .. .	149	<i>Nisaeus pennatus</i> .. .. .	263
<i>Motacilla flava thunbergi</i> .. .. .	152	<i>Nisaeus nisosimilis</i> (Accipiter) .. .. .	285
<i>Motacilla fulcata</i> .. .. .	63	<i>nitidus</i> (Acanthopneuste) .. .. .	117
<i>Motacilla indica</i> .. .. .	153	<i>nitidus</i> (Phylloscopus) .. .. .	117
<i>Motacilla maderaspatisensis</i> .. .. .	150	<i>nitidus nitidus</i> (Acanthopneuste) .. .. .	117
<i>Motacilla melanope</i> .. .. .	151	<i>nitidus viridanus</i> (Acanthopneuste) .. .. .	117
<i>Motacilla suecica</i> .. .. .	62	<i>Numenius arquata</i> .. .. .	360
<i>Motacilla sutoria</i> .. .. .	111	<i>Numenius arquatus lineatus</i> .. .. .	360
<i>Motacilla thunbergi</i> .. .. .	152	<i>Numenius lineatus</i> .. .. .	360
<i>Motacilla zeylonica</i> .. .. .	50	<i>Numenius phaeopus</i> .. .. .	361
<i>Motacillidae</i> .. .. .	148	<i>Numenius phaeopus phaeopus</i> .. .. .	361
<i>Munia atricapilla</i> .. .. .	136	<i>Nycticorax griseus</i> .. .. .	437
<i>Munia kelaarti</i> .. .. .	138	<i>Nycticorax nycticorax nycticorax</i> .. .. .	437
<i>Munia malabarica</i> .. .. .	139	<i>nycticorax</i> (Ardea) .. .. .	437
<i>Munia malacca</i> .. .. .	137		



	PAGE		PAGE
<i>perniger</i> (Aquila) .. .. .	265	<i>Pici</i> .. .. .	173
<i>Pernis cristatus</i> .. .. .	286	<i>Picidae</i> .. .. .	173
<i>Pernis cristatus ruficollis</i> .. .. .	286	<i>Picinae</i> .. .. .	173
<i>Pernis ptilonotus</i> .. .. .	286	<i>picta</i> ( <i>Perdix</i> ) .. .. .	321
<i>Pernis ruficollis</i> .. .. .	286	<i>pictus</i> ( <i>Francolinus</i> ) .. .. .	321
<i>personata</i> (Sulph) .. .. .	413	<i>pictus pictus</i> ( <i>Francolinus</i> ) .. .. .	321
<i>Petrocincla pandoo</i> .. .. .	71	<i>Picus chlorogaster</i> .. .. .	176
<i>Petrophila cyanus</i> .. .. .	71	<i>Picus chlorolophus chlorogaster</i> .. .. .	176
<i>Phabinae</i> .. .. .	304	<i>Picus erithronotus</i> .. .. .	180
<i>phaeopus</i> ( <i>Numenius</i> ) .. .. .	361	<i>Picus festinus</i> .. .. .	181
<i>phaeopus</i> ( <i>Scolapax</i> ) .. .. .	361	<i>Picus gymnophthalmus</i> .. .. .	178
<i>phaeopus phaeopus</i> ( <i>Numenius</i> ) .. .. .	361	<i>Picus maharattensis</i> .. .. .	176
<i>Phaethon flavirostris</i> .. .. .	414	<i>Picus striolatus</i> .. .. .	175
<i>Phaethon indicus</i> .. .. .	415	<i>pileata</i> ( <i>Alcedo</i> ) .. .. .	199
<i>Phaethon lepturus</i> .. .. .	414	<i>pileata</i> ( <i>Halcyon</i> ) .. .. .	199
<i>Phaethon lepturus lepturus</i> .. .. .	414	<i>pileata</i> ( <i>Sterna</i> ) .. .. .	398
<i>Phaethon rubricauda rubricauda</i> .. .. .	415	<i>Pipra squalida</i> .. .. .	170
<i>Phaethontidae</i> .. .. .	414	<i>Piprosoma agile</i> .. .. .	170
<i>Phalacrocoracidae</i> .. .. .	408	<i>Piprosoma squalidum</i> .. .. .	170
<i>Phalacrocoracinae</i> .. .. .	408	<i>Piprosoma squalidum squalidum</i> .. .. .	170
<i>Phalacrocorax carbo</i> .. .. .	409	<i>Pitta brachyura</i> .. .. .	171
<i>Phalacrocorax carbo sinensis</i> .. .. .	409	<i>Pitta coronata</i> .. .. .	171
<i>Phalacrocorax fuscicollis</i> .. .. .	410	<i>Pittidae</i> .. .. .	170
<i>Phalacrocorax javanicus</i> .. .. .	411	<i>Platalea leucorodia</i> .. .. .	423
<i>Phalacrocorax pygmaeus</i> .. .. .	411	<i>Platalea leucorodia major</i> .. .. .	423
<i>Phasianidae</i> .. .. .	313	<i>Platalea major</i> .. .. .	423
<i>Phasianinae</i> .. .. .	313	<i>Plataleae</i> .. .. .	420
<i>philippensis</i> ( <i>Pelecanus</i> ) .. .. .	405	<i>Plataleidae</i> .. .. .	422
<i>philippina</i> ( <i>Loxia</i> ) .. .. .	133	<i>platyrhynca</i> ( <i>Limicola</i> ) .. .. .	374
<i>philippinensis</i> ( <i>Pelecanus</i> ) .. .. .	405	<i>platyrhynca</i> ( <i>Tringa</i> ) .. .. .	374
<i>philippinus</i> ( <i>Merops</i> ) .. .. .	192	<i>Platyrhynchus ceylonensis</i> .. .. .	82
<i>philippinus</i> ( <i>Ploceus</i> ) .. .. .	133	<i>platyura</i> ( <i>Schoenicola</i> ) .. .. .	114
<i>philippinus philippinus</i> ( <i>Ploceus</i> ) .. .. .	133	<i>platyura</i> ( <i>Timalia</i> ) .. .. .	114
<i>Philomachus pugnax</i> .. .. .	369	<i>Plectropterinae</i> .. .. .	445
<i>Phodilus assimilis</i> .. .. .	245	<i>Plegadis falcinellus</i> .. .. .	422
<i>Phoenicophæus pyrrhocephalus</i> .. .. .	231	<i>Plegadis falcinellus falcinellus</i> .. .. .	422
<i>Phoenicophæinae</i> .. .. .	229	<i>Ploceidae</i> .. .. .	132
<i>Phoenicopter</i> .. .. .	442	<i>Ploceinae</i> .. .. .	132
<i>Phoenicopteridae</i> .. .. .	442	<i>Ploceus baya</i> .. .. .	133
<i>Phoenicopterus antiquorum</i> .. .. .	442	<i>Ploceus flaviceps</i> .. .. .	134
<i>Phoenicopterus roseus</i> .. .. .	442	<i>Ploceus manyar</i> .. .. .	134
<i>Phoenicopterus ruber antiquorum</i> .. .. .	442	<i>Ploceus manyar flaviceps</i> .. .. .	134
<i>phoenicopterus chlorogaster</i> ( <i>Cro-</i> <i>copus</i> ) .. .. .	299	<i>Ploceus philippinus</i> .. .. .	133
<i>Phoenicurus rubeculoides</i> .. .. .	78	<i>Ploceus philippinus philippinus</i> .. .. .	133
<i>phoenicurus</i> ( <i>Erythra</i> ) .. .. .	331	<i>Plotinae</i> .. .. .	411
<i>phoenicurus phoenicurus</i> ( <i>Amatur-</i> <i>nus</i> ) .. .. .	331	<i>Plotus melanogaster</i> .. .. .	412
<i>Phoenicurinae</i> .. .. .	61	<i>plotus</i> ( <i>Pelicanus</i> ) .. .. .	413
<i>phoenicurus</i> ( <i>Amaturornis</i> ) .. .. .	331	<i>plumipes</i> ( <i>Buteo</i> ) .. .. .	281
<i>phoenicurus</i> ( <i>Rallus</i> ) .. .. .	331	<i>Pluvialis dominicus fulvus</i> .. .. .	350
<i>Photodilinae</i> .. .. .	245	<i>Podargi</i> .. .. .	214
<i>Photodilus assimilis</i> .. .. .	245	<i>Podargidae</i> .. .. .	214
<i>Photodilus badius assimilis</i> .. .. .	245	<i>Podiceps albigennis</i> .. .. .	461
<i>Phyllornis jerdoni</i> .. .. .	52	<i>Podiceps fluviatilis</i> .. .. .	461
<i>Phyllornis malabaricus</i> .. .. .	51	<i>Podiceps ruficollis albigennis</i> .. .. .	461
<i>Phylloscopus magnirostris</i> .. .. .	118	<i>Podicipedidae</i> .. .. .	461
<i>Phylloscopus nitidus</i> .. .. .	117	<i>poecilorhynca</i> ( <i>Anas</i> ) .. .. .	453
<i>Phylloscopus viridanus</i> .. .. .	117	<i>poecilorhyncha poecilorhyncha</i> ( <i>Anas</i> ) .. .. .	453
<i>Pica ornata</i> .. .. .	36	<i>Polioaetus ichthyaetus</i> .. .. .	271
<i>picata</i> ( <i>Muscicapa</i> ) .. .. .	90	<i>poliocephala</i> ( <i>Gallinula</i> ) .. .. .	333
<i>pictus</i> ( <i>Hemipus</i> ) .. .. .	90	<i>poliocephalus</i> ( <i>Cuculus</i> ) .. .. .	221
<i>pictus pictus</i> ( <i>Hemipus</i> ) .. .. .	90	<i>poliocephalus</i> ( <i>Porphyrio</i> ) .. .. .	333
		<i>poliocephalus poliocephalus</i> ( <i>Cuculus</i> ) .. .. .	221

	PAGE		
<i>poliocephalus poliocephalus</i> (Porphyrio) ..	333	<i>puella puella</i> (Irena) ..	122
<i>pomarinus</i> (Lestris) ..	402	<i>Puffinus carneipes</i> ..	419
<i>pomarinus</i> (Stercorarius) ..	402	<i>Puffinus carneipes carneipes</i> ..	419
<i>Pomatorhinus horsfieldi melanurus</i> ..	45	<i>Puffinus chlororhynchus</i> ..	418
<i>Pomatorhinus melanurus</i> ..	45	<i>Puffinus leucomelas</i> ..	418
<i>pomatorhinus</i> (Stercorarius) ..	402	<i>Puffinus pacificus hamiltoni</i> ..	418
<i>pompadora</i> (Columba) ..	300	<i>pugnax</i> (Machetes) ..	369
<i>pompadora</i> (Osmotreron) ..	300	<i>pugnax</i> (Favoncella) ..	369
<i>pompadora pompadora</i> (Treron) ..	300	<i>pugnax</i> (Philomachus) ..	369
<i>pondiceriana</i> (Tephrodornis) ..	91	<i>pugnax</i> (Tringa) ..	369
<i>pondicerianus</i> (Francolinus) ..	322	<i>pugnax</i> (Turnix) ..	324
<i>pondicerianus</i> (Ortygornis) ..	322	<i>pulchratus</i> (Turtur) ..	308
<i>pondicerianus</i> (Tephrodornis) ..	91	<i>puniceus</i> (Alsocomus) ..	308
<i>pondicerianus</i> (Tetrao) ..	322	<i>puncticollis</i> (Brachypter opicis) ..	179
<i>pondicerianus affinis</i> (Tephrodornis) ..	91	<i>puncticollis</i> (Brachypterus) ..	179
<i>pondicerianus pondicerianus</i> (Francolinus) ..	322	<i>punctulata</i> (Loxia) ..	140
<i>pooneensis</i> (Muscicapa) ..	80	<i>punctulata</i> (Munia) ..	140
<i>Porphyrio poliocephalus</i> ..	333	<i>punctulata</i> (Uroloncha) ..	140
<i>Porphyrio poliocephalus poliocephalus</i> ..	333	<i>punctulata punctulata</i> (Uroloncha) ..	140
<i>Porzana bailloni</i> ..	329	<i>purpurea</i> (Ardea) ..	431
<i>Porzana fusca</i> ..	330	<i>purpurea manillensis</i> (Ardea) ..	431
<i>Porzana pusilla</i> ..	329	<i>pusilla</i> (Carpophaga) ..	303
<i>Porzana pusilla pusilla</i> ..	329	<i>pusilla</i> (Porzana) ..	329
<i>Pratincola atrata</i> ..	60	<i>pusilla pusilla</i> (Porzana) ..	329
<i>Pratincola bicolor</i> ..	60	<i>pusillus</i> (Rallus) ..	329
<i>Prinia brevicauda</i> ..	119	<i>Pycnonotidae</i> ..	53
<i>Prinia gracilis</i> ..	113	<i>Pycnonotus haemorrhous</i> ..	55
<i>Prinia hodgsoni</i> ..	113	<i>Pycnonotus luteolus</i> ..	57
<i>Prinia inornata jerdoni</i> ..	121	<i>Pycnonotus melanicterus</i> ..	56
<i>Prinia jerdoni</i> ..	121	<i>Pycnonotus penicillatus</i> ..	58
<i>Prinia socialis</i> ..	119	<i>Pyctorhis nasalis</i> ..	47
<i>Prinia socialis socialis</i> ..	119	<i>Pyctorhis sinensis nasalis</i> ..	47
<i>Prinia sylvatica</i> ..	120	<i>pygargus</i> (Circus) ..	277
<i>Prinia sylvatica valida</i> ..	120	<i>pygargus</i> (Falco) ..	277
<i>Prionochilus vincens</i> ..	169	<i>pugnax</i> (Phalacrocorax) ..	411
<i>Procellaria capensis</i> ..	419	<i>Pygopodes</i> ..	461
<i>Procellaria oceanica</i> ..	417	<i>Pyrotrogon fasciatus</i> ..	216
<i>Procellariidae</i> ..	416	<i>pyrrhocephalus</i> (Cuculus) ..	231
<i>psaroides ganeesa</i> (Microscelis) ..	54	<i>pyrrhocephalus</i> (Phoenicophaea) ..	231
<i>Pseudotantalus leucocephalus</i> ..	427	<i>Pyrrhuloxia grisea</i> ..	159
<i>Pseudotantalus leucocephalus leucocephalus</i> ..	427	<i>Pyrrhuloxia grisea grisea</i> ..	159
<i>Psittaci</i> ..	236	<i>Querquedula circia</i> ..	457
<i>Psittacidae</i> ..	236	<i>Querquedula querquedula</i> ..	457
<i>Psittacula calthrapae</i> ..	239	<i>querquedula</i> (Anas) ..	457
<i>Psittacula columboides</i> ..	240	<i>querquedula</i> (Querquedula) ..	457
<i>Psittacula cyanocephala cyanocephala</i> ..	238	<i>radiatum</i> (Glauclidium) ..	254
<i>Psittacula eupatria eupatria</i> ..	237	<i>radiatum castanopterum</i> (Glauclidium) ..	254
<i>Psittacula torquata</i> ..	238	<i>radiatum malabaricum</i> (Glauclidium) ..	254
<i>Psittacus cyanocephalus</i> ..	238	<i>Rallidae</i> ..	326
<i>Psittacus eupatria</i> ..	237	<i>Rallina eurizonoides</i> ..	329
<i>Psittacus indicus</i> ..	240	<i>Rallina superciliosa</i> ..	329
<i>Psittacus torquatus</i> ..	238	<i>Rallus aquaticus indicus</i> ..	327
<i>ptilogenys</i> (Eulabea) ..	127	<i>Rallus benghalensis</i> ..	381
<i>ptilogenys</i> (Graucalus) ..	127	<i>Rallus fuscus</i> ..	330
<i>ptilonrhynchus</i> (Pernis) ..	286	<i>Rallus indicus</i> ..	327
<i>Ptyonoprogne concolor</i> ..	144	<i>Rallus phoenicurus</i> ..	331
<i>Ptyonoprogne rupestris</i> ..	144	<i>Rallus pusillus</i> ..	329
<i>puella</i> (Coracias) ..	122	<i>Rallus striatus</i> ..	328
<i>puella</i> (Irena) ..	122	<i>Rallus superciliosus</i> ..	329

	PAGE		PAGE
Ramphalcyon capensis gurali ..	197	Sarcogrammus indicus ..	347
Ratitae ..	23	sacra asha (Demigretta) ..	435
Recurvirostra avocetta ..	357	saularis (Copsychus) ..	64
Recurvirostra avocetta avocetta ..	357	saularis ceylonensis (Copsychus) ..	64
recurvirostris (Esacus) ..	337	saundersi (Sterna) ..	396
recurvirostris (Oedinemus) ..	337	Saxicola caprata atrata ..	60
religiosa (Eulabes) ..	126	Saxicolinae ..	60
religiosa (Graucala) ..	126	Saxicoloides fucata fucata ..	63
Rhipidura albifrontata ..	85	schach caniceps (Lanius) ..	87
Rhipidura aureola compressirostris ..	85	Schoenicola platyura ..	114
Rhopocichla atriceps nigrifrons ..	49	scita (Hypolaïs) ..	15
Rhopocichla nigrifrons ..	49	scita (Sylvia) ..	115
Rhopodytes viridirostris ..	231	scolopaceus (Cuculus) ..	230
Rhynchaea capensis ..	381	scolopaceus scolopaceus (Eudynamis) ..	230
richardi (Anthus) ..	154	scolopacina (Gallinago) ..	378
richardi (Corydalla) ..	154	Scolopacinae ..	375
richardi richardi (Anthus) ..	154	Scolopax cinerea ..	363
richardi rufus (Anthus) ..	155	Scolopax erythropus ..	366
richardi striolatus (Anthus) ..	155	Scolopax falcinellus ..	374
Riparia ..	144	Scolopax gallinago ..	378
risoria decascto (Columba) ..	310	Scolopax limosa ..	362
risorius (Turtur) ..	310	Scolopax minima ..	379
roseus (Pastor) ..	128	Scolopax nebularia ..	368
roseus (Phoenicopteris) ..	442	Scolopax phaeopus ..	361
roseus (Turdus) ..	128	Scolopax rusticola ..	376
Rostratula benghalensis ..	381	Scolopax rusticola rusticola ..	376
Rostratula benghalensis benghalensis ..	381	Scolopax rusticola ..	376
Rostratulidae ..	380	Scolopax stenura ..	378
rubeculoides (Cyornis) ..	78	scolopax (Oedinemus) ..	336
rubeculoides (Phoenicurus) ..	78	Scops bakhamaena ..	252
rubeculoides (Siphia) ..	78	Scops bakhamaena ..	252
rubeculoides rubeculoides (Cyornis) ..	78	Scops giu ..	251
rubus antiquorum (Phoenicopteris) ..	442	Scops minutus ..	251
Rubigula melanicter ..	56	Scops sunia ..	251
rubricapilla (Xantholaema) ..	186	scops minutus (Otus) ..	251
rubricapillus (Bucco) ..	186	scutulata (Ninox) ..	255
rubricauda rubricauda (Phaethon) ..	415	scutulata hirsuta (Ninox) ..	255
rubroniger (Munia) ..	136	seena (Sterna) ..	399
rudis (Ceryle) ..	195	senex (Heterornis) ..	130
rudis leucomelanura (Ceryle) ..	195	senex (Sturnornis) ..	130
rufescens (Crateropus) ..	44	severus (Falco) ..	292
rufescens (Malacocercus) ..	44	severus indicus (Falco) ..	292
rufescens (Turdoides) ..	44	Sibiinae ..	39
ruficollis (Pernis) ..	286	sinensis (Ardea) ..	439
ruficollis alpinensis (Podiceps) ..	461	sinensis (Ardeotis) ..	439
rufina (Netta) ..	459	sinensis (Centropus) ..	233
rufipennis (Centropus) ..	233	sinensis (Ixobrychus) ..	439
rufiventris (Butor) ..	281	s nensis (Pelicanus) ..	409
rufula (Corydalla) ..	155	sinensis (Sterna) ..	395
rufulus (Anthus) ..	155	sinensis naealis (Pyctorhis) ..	47
rupestris (Ptyonoprogne) ..	144	sinensis parroti (Centropus) ..	233
rustica (Hirundo) ..	144	Siphia hyperythra ..	77
rustica gutturalis (Hirundo) ..	145	Siphia parva hyperythra ..	77
rustica javanica (Hirundo) ..	145	Siphia rubeculoides ..	78
rusticola (Scolopax) ..	375	Siphia tickelliae ..	79
rusticola rusticola (Scolopax) ..	376	sirkee lechenaulti (Taccocua) ..	232
rusticola (Scolopax) ..	376	Sitta frontalis ..	38
rutila (Casarca) ..	453	Sitta frontalis frontalis ..	38
		Sittidae ..	38
		smymensis (Halcyon) ..	198
Sarcidornis melanotos ..	446	smymensis generosa (Halcyon) ..	198
Sarcidornis melanota ..	446	socialis (Prinia) ..	119
Sarciphorus malabaricus ..	348	socialis socialis (Prinia) ..	119

	PAGE		PAGE
<i>solitaria</i> pandoo (Monticola) ..	71	<i>Sterna korustes</i> ..	394
<i>sonnerati</i> (Cuculus) ..	224	<i>Sterna leucoptera</i> ..	389
<i>sonnerati</i> (Penthoceryx) ..	224	<i>Sterna longipennis</i> ..	394
<i>sonneratii</i> waiti (Penthoceryx) ..	224	<i>Sterna media</i> ..	392
<i>sordida</i> (Glaucomyias) ..	79	<i>Sterna melanogaster</i> ..	399
<i>sordida</i> (Stoparola) ..	79	<i>Sterna nilotica</i> ..	391
<i>Spatula clypeata</i> ..	458	<i>Sterna nilotica nilotica</i> ..	391
<i>speciosus</i> flammeus (Pericrocotus) ..	93	<i>Sterna pileata</i> ..	398
<i>spilogaster</i> (Haematornis) ..	269	<i>Sterna saundersi</i> ..	396
<i>spilogaster</i> (Spilornis) ..	269	<i>Sterna seena</i> ..	399
<i>spiloptera</i> (Oreocinclia) ..	73	<i>Sterna sinensis</i> ..	395
<i>spiloptera</i> (Turdus) ..	73	<i>Sterna velox</i> ..	393
<i>Spilornis cheela</i> ..	269	<i>Sterninae</i> ..	386
<i>Spilornis cheela spilogaster</i> ..	269	<i>stolidus</i> (Anous) ..	398
<i>Spilornis spilogaster</i> ..	269	<i>stolidus</i> pileatus (Anous) ..	398
<i>Spizaetus ceylanensis</i> ..	266	<i>Stoparola sordida</i> ..	79
<i>Spizaetus cirrhatus</i> ..	266	<i>strepero</i> (Anas) ..	454
<i>Spizaetus cirrhatus ceylanensis</i> ..	266	<i>streperus</i> (Chauleasmus) ..	454
<i>Spizaetus kelaarti</i> ..	267	<i>Streptilas interpres</i> ..	346
<i>Spizaetus nipalensis kelaarti</i> ..	267	<i>Streptopelia chinensis ceylonensis</i> ..	309
<i>splendens</i> (Corone) ..	34	<i>Streptopelia decaocto decaocto</i> ..	310
<i>splendens</i> (Corvus) ..	34	<i>Streptopelia orientalis meena</i> ..	308
<i>splendens</i> protegatus (Corvus) ..	34	<i>striata</i> (Hypotaenidia) ..	328
<i>squalida</i> (Pipra) ..	170	<i>striata</i> (Loxia) ..	138
<i>squalidum</i> (Piprosoma) ..	170	<i>striata</i> (Munia) ..	138
<i>squalidum squalidum</i> (Piprosoma) ..	170	<i>striata</i> (Uroloncha) ..	138
<i>Squatarola helvetica</i> ..	349	<i>striata striata</i> (Hypotaenidia) ..	328
<i>Squatarola squatarola hypomelana</i> ..	349	<i>striata striata</i> (Uroloncha) ..	138
<i>squatarola hypomelana</i> (Squatarola) ..	349	<i>striatus</i> (Crateropus) ..	43
<i>stagnatilis</i> (Totanus) ..	366	<i>striatus</i> (Malaccocercus) ..	43
<i>stagnatilis</i> (Tringa) ..	366	<i>striatus</i> (Rallus) ..	328
<i>Steganopodes</i> ..	404	<i>striatus javanicus</i> (Butorides) ..	436
<i>stentoreus</i> (Acrocephalus) ..	109	<i>stricklandi</i> (Brachypternus) ..	182
<i>stentoreus amyae</i> (Acrocephalus) ..	109	<i>stricklandi</i> (Chrysocolaptes) ..	182
<i>stenura</i> (Gallinago) ..	378	<i>Striges</i> ..	242
<i>stenura</i> (Scolopax) ..	378	<i>striolata</i> (Corydalla) ..	155
<i>Stercorariidae</i> ..	400	<i>striolatus</i> (Anthus) ..	155
<i>Stercorarius antarcticus</i> ..	401	<i>striolatus</i> (Gecinus) ..	175
<i>Stercorarius antarcticus antarcticus</i> ..	401	<i>striolatus</i> (Picus) ..	175
<i>Stercorarius antarcticus macror-</i> <i>mickii</i> ..	402	<i>Strix flammea</i> ..	244, 247
<i>Stercorarius maccormickii</i> ..	402	<i>Strix javanica</i> ..	244
<i>Stercorarius pomarinus</i> ..	402	<i>Strix indranee</i> ..	247
<i>Stercorarius pomarinus</i> ..	402	<i>Strix indranee indranee</i> ..	247
<i>Sterna albigrons saundersi</i> ..	396	<i>Strix zeylonensis</i> ..	249
<i>Sterna albigrons sinensis</i> ..	395	<i>Sturnia pagodarum</i> ..	129
<i>Sterna anaetheta</i> ..	397	<i>Sturnidae</i> ..	127
<i>Sterna anaetheta anaetheta</i> ..	397	<i>Sturnornis senex</i> ..	130
<i>Sterna anaethetus</i> ..	397	<i>Sturnus luteolus</i> ..	124
<i>Sterna anglica</i> ..	391	<i>subarquata</i> (Tringa) ..	373
<i>Sterna bengalensis</i> ..	392	<i>subminuta</i> (Erolia) ..	371
<i>Sterna bengalensis bengalensis</i> ..	392	<i>subminuta</i> (Tringa) ..	371
<i>Sterna bergii</i> ..	393	<i>suecica</i> (Cyanecula) ..	62
<i>Sterna bergii velox</i> ..	393	<i>suecica pallidogularis</i> (Cyanecula) ..	62
<i>Sterna caspia</i> ..	390	<i>suecica pallidogularis</i> (Cyanosylvia) ..	62
<i>Sterna dougalli</i> ..	394	<i>Sula cyanops</i> ..	413
<i>Sterna dougalli korustes</i> ..	394	<i>Sula leucogaster</i> ..	413
<i>Sterna fluviatilis</i> ..	393	<i>Sula leucogaster plotus</i> ..	413
<i>Sterna fuliginosa</i> ..	397	<i>Sula leucogastra</i> ..	413
<i>Sterna fuscata infuscata</i> ..	397	<i>Sula personata</i> ..	413
<i>Sterna hiruuda</i> ..	393	<i>Sulidae</i> ..	412
<i>Sterna hirundo hirundo</i> ..	393	<i>sunia</i> (Scops) ..	251
<i>Sterna infuscata</i> ..	397	<i>Surniculus lugubris</i> ..	225
		<i>Surniculus lugubris stewarti</i> ..	225



	PAGE		PAGE
superciliaris (Rallina) ..	329	tinnunculus tinnunculus (Falco) ..	294
superciliaris (Rallus) ..	329	tiphia (Aegithina) ..	50
superciliosus javanicus (Merops) ..	192	tiphia (Iora) ..	50
suratensis (Turtur) ..	309	tiphia zeylonica (Aegithina) ..	50
sutoria (Motacilla) ..	111	Tockus gingalensis ..	202
sutorius (Orthotomus) ..	111	torquata (Psittacula) ..	238
sutorius sutorius (Orthotomus) ..	111	torquatus (Palaeornis) ..	238
swinhoi (Merops) ..	193	torquatus (Psittacus) ..	238
swinhoi (Melittophagus) ..	193	torringtoniae (Alscornus) ..	307
sykesii (Campophaga) ..	95	torringtoniae (Palumbus) ..	307
sykesii (Lalage) ..	95	torringtonii (Alscornus) ..	307
sylvatica (Prinia) ..	120	torringtonii (Palumbus) ..	307
sylvatica valida (Prinia) ..	120	Totaminae ..	357
Sylvia affinis ..	116	Totanus calidris ..	367
Sylvia althaea ..	116	Totanus fuscus ..	366
Sylvia curruca affinis ..	116	Totanus glareola ..	364
Sylvia exilis ..	115	Totanus glottis ..	368
Sylviidae ..	105	Totanus hypoleucus ..	363
Symitum indrani ..	247	Totanus ochropus ..	365
		Totanus stagnatilis ..	366
		Totanus totanus eurhinus ..	367
Taccocua leschenaulti ..	232	totanus eurhinus (Totanus) ..	367
Taccocua sirkee leschenaulti ..	232	totanus eurhinus (Tringa) ..	367
Tachornis batasiensis ..	207	tranquebarica (Columba) ..	311
Tachornis batasiensis batasiensis ..	207	tranquebarica (Oenopelia) ..	311
Tachybaptus alpehensis ..	461	tranquebarica tranquebarica (Oenopelia) ..	311
Tadorna casarca ..	453	tranquebaricus (Turtur) ..	311
taigoor (Turnix) ..	324	Treron bisincta bisincta ..	301
Tantalus falcinellus ..	422	Treron pompadora pompadora ..	300
Tantalus leucocephalus ..	427	Treroninae ..	298
Tantalus melanocephalus ..	421	tridactyla (Alcedo) ..	197
telephus (Cuculus) ..	220	tridactyla (Ceyx) ..	197
Temenuchus pagodarum ..	372	tridactylus tridactylus (Ceyx) ..	197
temminckii (Tringa) ..	372	Tringa canutus ..	374
temminckii (Erolia) ..	372	Tringa chirurgus ..	343
tenuirostris (Calidris) ..	358	Tringa erythropus ..	366
Tephrodornis affinis ..	91	Tringa ferruginea ..	373
Tephrodornis pondiceriana ..	91	Tringa glareola ..	364
Tephrodornis pondicerianus ..	91	Tringa hypoleuca ..	363
Tephrodornis pondicerianus affinis ..	91	Tringa hypoleucus ..	363
Terekia cinerea ..	363	Tringa indica ..	347
Terpsephone paradisi paradisi ..	83	Tringa interpres ..	346
Terpsiphone paradisi ..	83	Tringa minuta ..	371
Tetrao chinensis ..	318	Tringa nebularia ..	368
Tetrao coromandelicus ..	319	Tringa ochropus ..	365
Tetrao pondicerianus ..	322	Tringa platyrhynchos ..	374
Thamnobis fulcata ..	63	Tringa pugnax ..	369
Thereiceryx zeylanicus ..	184	Tringa stagnatilis ..	366
Thereiceryx zeylanicus zeylanicus ..	184	Tringa subarquata ..	373
Threskiornis melanocephalus melanocephalus ..	421	Tringa subminuta ..	371
thunbergi (Motacilla) ..	152	Tringa temminckii ..	372
tickelli (Cyornis) ..	79	Tringa totanus eurhinus ..	367
tickelliae (Siphia) ..	79	Tringoides hypoleucus ..	363
tickelliae messea (Cyornis) ..	79	tristis melanosternus (Acridotheres) ..	131
Timalia platyura ..	114	trivirgatus (Astur) ..	283
Timaliidae ..	39	trivirgatus (Falco) ..	233
Timaliinae ..	41	trivirgatus (Lophospizias) ..	283
Timelinae ..	39	trivirgatus trivirgatus (Astur) ..	283
Tinnunculus alaudarius ..	294	Trogon fasciatus ..	216
tinnunculus (Cerchneia) ..	294	Trogon ..	216
tinnunculus (Falco) ..	294	Trogonidae ..	216
tinnunculus interstinctus (Falco) ..	295	Tubinares ..	416

	PAGE		PAGE
Turdidae .. .. .	59	<i>Vinago chlorogaster</i> .. ..	299
Turdinae .. .. .	67	<i>vincens</i> ( <i>Acmonorhynchus</i> ) .. ..	169
Turdoides cinereifrons .. ..	44	<i>vincens</i> ( <i>Pachyglossa</i> ) .. ..	169
Turdoides griseus striatus .. ..	43	<i>vincens</i> ( <i>Prionochilus</i> ) .. ..	169
Turdoides rufescens .. .. .	44	<i>viratula indica</i> .. .. .	389
<i>Turdus citrinus</i> .. .. .	71	<i>virgatus</i> ( <i>Accipiter</i> ) .. ..	284
<i>Turdus kinnisi</i> .. .. .	69	<i>virgatus besra</i> ( <i>Accipiter</i> ) .. ..	284
<i>Turdus merula kinnisi</i> .. ..	69	<i>viridanus</i> ( <i>Acanthopneuste</i> ) .. ..	117
<i>Turdus pagodarum</i> .. .. .	129	<i>viridanus</i> ( <i>Phylloscopus</i> ) .. ..	117
<i>Turdus roseus</i> .. .. .	128	<i>viridirostris</i> ( <i>Rhopodytes</i> ) .. ..	231
<i>Turdus spiloptera</i> .. .. .	73	<i>vir dirostris</i> ( <i>Zanclostomus</i> ) .. ..	231
<i>Turdus wardi</i> .. .. .	70	<i>viridis</i> ( <i>Merops</i> ) .. .. .	191
Turnicidae .. .. .	324	<i>Vultur ginginianus</i> .. ..	259
<i>Turnix javanica leggei</i> .. ..	324		
<i>Turnix pugnax</i> .. .. .	324	<i>wardi</i> ( <i>Geocichla</i> ) .. ..	70
<i>Turnix taigoo</i> .. .. .	324	<i>wardi</i> ( <i>Turdus</i> ) .. .. .	70
<i>Turtur ceylonensis</i> .. .. .	309		
<i>Turtur ferrago</i> .. .. .	308	<i>xanthoderus</i> ( <i>Chrysophlegma</i> ) .. ..	176
<i>Turtur pulchratus</i> .. .. .	308	<i>Xantholaema haemacephala</i> .. ..	185
<i>Turtur risorius</i> .. .. .	310	<i>Xantholaema haemacephala indica</i> .. ..	185
<i>Turtur suratensis</i> .. .. .	309	<i>Xantholaema haematoccephala</i> .. ..	185
<i>Turtur tranquebaricus</i> .. ..	311	<i>Xantholaema rubricapilla</i> .. ..	186
<i>Tyto alba javanica</i> .. .. .	244	<i>xanthosterna</i> ( <i>Fringilla</i> ) .. ..	141
Tytonidae .. .. .	243	<i>xanthosterna xanthosterna</i> ( <i>Gym-</i> <i>norhis</i> ) .. .. .	141
<i>unicolor</i> ( <i>Collocalia</i> ) .. ..	208	<i>Xenorhynchus asiaticus</i> .. ..	425
<i>unicolor</i> ( <i>Hirundo</i> ) .. .. .	208	<i>Xenorhynchus asiaticus asiaticus</i> .. ..	425
<i>unicolor unicolor</i> ( <i>Collocalia</i> ) .. ..	208		
<i>Upupa ceylonensis</i> .. .. .	203	<i>Zanclostomus viridirostris</i> .. ..	231
<i>Upupa epops ceylonensis</i> .. ..	203	<i>zeylanica</i> ( <i>Megalaema</i> ) .. ..	184
<i>Upupa indica</i> .. .. .	203	<i>zeylanicus</i> ( <i>Bucco</i> ) .. .. .	184
<i>Upupa nigripennis</i> .. .. .	203	<i>zeylanicus zeylanicus</i> ( <i>Thereiceryx</i> ) .. ..	184
<i>Upupae</i> .. .. .	202	<i>zeylonensis</i> ( <i>Ketupa</i> ) .. ..	249
<i>Upupidae</i> .. .. .	202	<i>zeylonensis</i> ( <i>Strix</i> ) .. .. .	249
<i>urbica</i> ( <i>Delichon</i> ) .. .. .	144	<i>zeylonensis zeylonensis</i> ( <i>Ketupa</i> ) .. ..	249
<i>Uroloncha kelaarti</i> .. .. .	138	<i>zeylonica</i> ( <i>Arachnechthra</i> ) .. ..	166
<i>Uroloncha malabarica</i> .. ..	139	<i>zeylonica</i> ( <i>Certhia</i> ) .. .. .	166
<i>Uroloncha punctulata</i> .. ..	140	<i>zeylonica</i> ( <i>Motacilla</i> ) .. ..	50
<i>Uroloncha punctulata punctulata</i> .. ..	140	<i>zeylonicus</i> ( <i>Cunyrus</i> ) .. .. .	166
<i>Uroloncha striata</i> .. .. .	138	<i>zeylonicus</i> ( <i>Cyrtostomus</i> ) .. ..	166
<i>Uroloncha striata striata</i> .. ..	138	<i>zeylonicus</i> ( <i>Thereiceryx</i> ) .. ..	184
		<i>Zoothera imbricata</i> .. .. .	72
<i>valida</i> ( <i>Drymoica</i> ) .. .. .	120	<i>Zosteropidae</i> .. .. .	160
<i>vassia</i> ( <i>Ceryle</i> ) .. .. .	195	<i>Zosterops ceylonensis</i> .. ..	161
<i>varius</i> ( <i>Cuculus</i> ) .. .. .	222	<i>Zosterops egregia</i> .. .. .	161
<i>varius</i> ( <i>Hierococc</i> ) .. .. .	222	<i>Zosterops palpebrosa</i> .. ..	161
<i>velox</i> ( <i>Sterna</i> ) .. .. .	393	<i>Zosterops palpebrosa egregia</i> .. ..	161
<i>vespertinus amurensis</i> ( <i>Falco</i> ) .. ..	293	<i>Zygodactylus</i> .. .. .	183
<i>Vidua</i> .. .. .	135		
<i>Vinago bismata</i> .. .. .	301		

## LIST OF PLATES

---

- |            |                |         |  |
|------------|----------------|---------|--|
| PLATE I.   | <b>Fig. 1.</b> | No. 4.  | <i>Parus major mahrattarum.</i><br><i>Southern Gray Tit.</i>                                     |
|            |                | 2.      | 12. <i>Pellorneum fuscicapillum.</i><br><i>Brown-capped Babbler (m.).</i>                        |
|            |                | 3.      | 16. <i>Chloropsis jerdoni (m.).</i><br><i>Jerdon's Chloropsis.</i>                               |
|            |                |         |  |
| PLATE II.  | <b>Fig. 1.</b> | No. 20. | <i>Pycnonotus melanicterus.</i><br><i>Black-capped Bulbul.</i>                                   |
|            |                | 2.      | 27. <i>Kittocincla macroura indica.</i><br><i>Indian Shama.</i>                                  |
|            |                | 3.      | 34. <i>Oreocincla spiloptera.</i><br><i>Spotted-winged Thrush.</i>                               |
|            |                |         |  |
| PLATE III. | <b>Fig. 1.</b> | No. 38. | <i>Cyornis tickelliae mesaea (m.).</i><br><i>Oberholser's Blue Flycatcher.</i>                   |
|            |                | 2.      | 45. <i>Rhipidura aureola compressirostris.</i><br><i>Ceylon White-browed Fantail Flycatcher.</i> |
|            |                | 3.      | 46. <i>Lanius schach caniceps.</i><br><i>Southern Rufous-backed Shrike.</i>                      |
|            |                |         |  |
| PLATE IV.  | <b>Fig. 1.</b> | No. 66. | <i>Cisticola juncidis omalura (winter).</i><br><i>Ceylon Streaked Fantail Warbler.</i>           |
|            |                | 2.      | 58. <i>Dicrurus coerulescens leucopygialis.</i><br><i>White-vented Drongo.</i>                   |
|            |                | 3.      | 76. <i>Prinia sylvatica valida.</i><br><i>Ceylon Jungle Wren-Warbler.</i>                        |
|            |                |         |  |
| PLATE V.   | <b>Fig. 1.</b> | No. 99. | <i>Hirundo daurica hyperythra.</i><br><i>Ceylon Swallow.</i>                                     |
|            |                | 2.      | 82. <i>Eulabes ptilogenys.</i><br><i>Ceylon Grackle.</i>   |

- Fig. 3. No. 87. *Ploceus philippinus philippinus*  
(breeding m.).  
*Baya.*

- PLATE VI. Fig. 1. No. 107. *Anthus richardi rufulus.*  
*Indian Pipit.*  
2. 102. *Motacilla cinerea melanope* (winter).  
*Gray Wagtail.*  
3. 109. *Mirafra assamica affinis.*  
*Madras Bush-Lark.*

- PLATE VII. Fig. 1. No. 112. *Zosterops ceylonensis.*  
*Large Ceylon White-eye.*  
2. 116. *Cyrtostomus zeylouicus* (m.).  
*Purple-rumped Sunbird.*  
3. 118. *Acemonorhynchus vincens* (m.).  
*Legge's Flowerpecker.*

- PLATE VIII. Fig. 1. No. 127. *Brachypternus aurantius erithro-*  
*notus* (m.).  
*Red-backed Woodpecker.*  
2. 133. *Xantholaema rubricapilla.*  
*Small Ceylon Barbet.*  
3. 137. *Merops superciliosus javanicus.*  
*Blue-tailed Bee-Eater.*

- PLATE IX. Fig. 1. No. 148. *Upupa epops ceylonensis.*  
*Ceylon Hoopoe.*  
2. 144. *Halcyon smyrnensis generosa.*  
*Ceylon White-breasted Kingfisher.*  
3. 154. *Hemiprocne coronata* (f.).  
*Indian Crested Swift.*

- PLATE X. Fig. 1. No. 170. *Rhopodytes viridirostris.*  
*Small Green Malkoha.*  
2. 162. *Cuculus micropterus micropterus*  
(adult).  
*Indian Cuckoo.*  
3. 157. *Caprimulgus kelaarti.*  
*Ceylon Jungle Nightjar.*

- PLATE XI. Fig. 1. No. 176. *Pittacula eupatria eupatria* (f.).  
*Large Ceylonese Paroquet.*

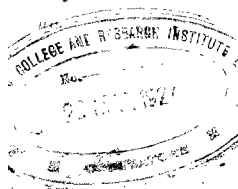
- Fig. 2.** No. 184. *Strix ndranee indranee.*  
*Brown Wood Owl.*
3. 188. *Otus bakkamoena bakkamoena.*  
*Collared Scops Owl.*
- PLATE XII. Fig. 1.** No. 199. *Spizaetus nipalensis kelaarti (immature).*  
*Legge's Hawk-Eagle.*
2. 203. *Haliastur indus indus.*  
*Brahminy Kite.*
3. 209. *Circus aeruginosus aeruginosus.*  
*Marsh Harrier.*
- PLATE XIII. Fig. 1.** No. 216. *Aviceda jerdoni ceylonensis.*  
*Legge's Baza.*
2. 217. *Falco peregrinus calidus.*  
*Siberian Peregrine Falcon.*
3. 211. *Astur badius badius.*  
*Ceylon Shikra.*
- PLATE XIV. Fig. 1.** No. 233. *Streptopelia decaocto decaocto.*  
*Indian Ring-Dove.*
2. 223. *Treron pompadora pompadora (m.).*  
*Pompadour Green Pigeon.*
3. 238. *Excalfactoria chinensis chinensis*  
*(young m.).*  
*Blue-throated Quail.*
- PLATE XV. Fig. 1.** No. 245. *Hypotaenidia striata striata (m.).*  
*Blue-breasted Banded Rail*
2. 253. *Burhinus oedionemus indicus.*  
*Indian Stone-Curlew.*
3. 262. *Sarciophorus malabaricus.*  
*Yellow-wattled Lapwing.*
- PLATE XVI. Fig. 1.** No. 271. *Charadrius alexandrinus seebohmi*  
*(winter).*  
*Indian Kentish Plover.*
2. 282. *Tringa stagnatilis (winter).*  
*Marsh Sandpiper.*
3. 288. *Erolia minuta (immature).*  
*Little Stint.*

- PLATE XVII. **Fig. 1.** No. 301. *Larus brunnicephalus* (winter).  
*Brown-headed Gull.*
2. 316. *Anous stolidus pileatus*.  
*Philippine Noddy.*
3. 312. *Sterna albifrons sinensis* (winter).  
*White-shafted Little Tern.*

- PLATE XVIII. **Fig. 1.** No. 325. *Phalacrocorax javanicus*.  
*Little Cormorant.*
2. 327. *Sula leucogaster plotus* (immature).  
*Booby.*
3. 332. *Puffinus pacificus hamiltoni*.  
*Green-billed Shearwater.*

- PLATE XIX. **Fig. 1.** No. 336. *Plegadis falcinellus falcinellus*  
(winter).  
*Glossy Ibis.*
2. 339. *Dissoura episcopa episcopa*.  
*Indian White-necked Stork.*
3. 344. *Ardea purpurea manillensis*.  
*Eastern Purple Heron.*

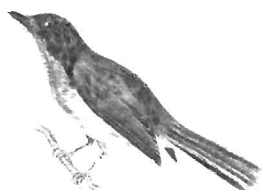
- PLATE XX. **Fig. 1.** No. 358. *Dupetor flavicollis*.  
*Black Bittern.*
2. 369. *Dafila acuta* (breeding m).  
*Pintail.*
3. 370. *Querquedula querquedula* (breeding  
m.).  
*Garganey Teal.*





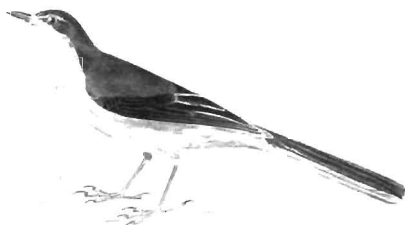
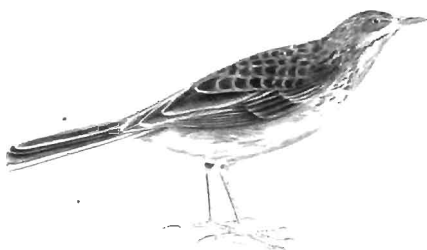




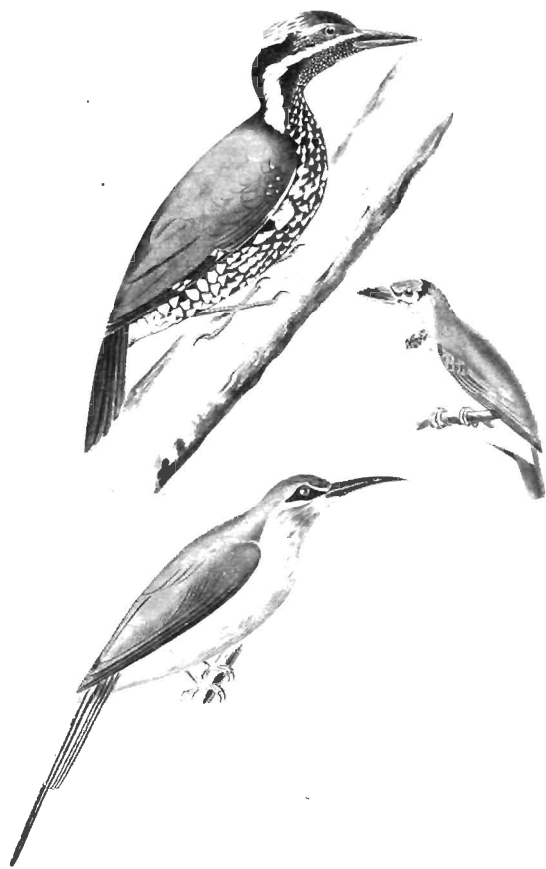














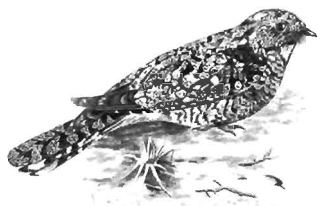
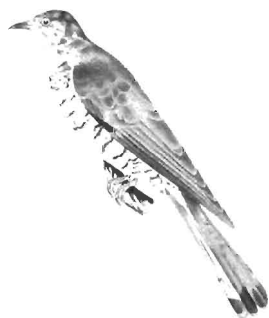
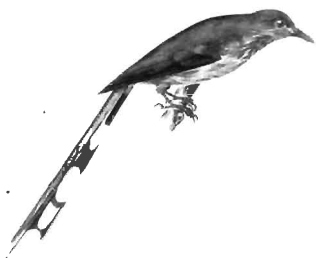


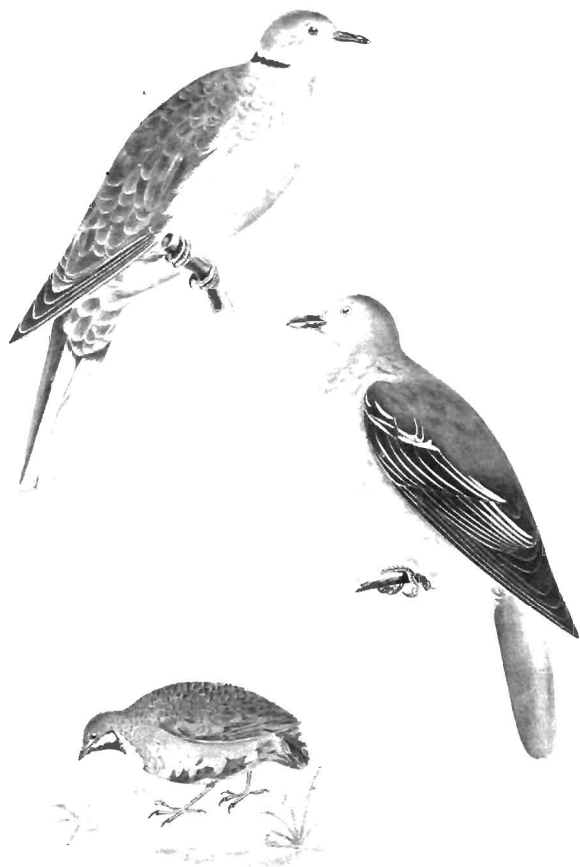








PLATE XIV.





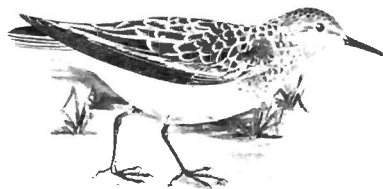


PLATE XVII.

